APPENDIX G

PALEONTOLOGICAL TECHNICAL STUDY

CULTURAL RESOURCE INVENTORY FOR THE SEVILLE 4 SOLAR PROJECT, IMPERIAL COUNTY, CALIFORNIA

Cultural Resource Inventory for the Seville 4 Solar Project, Imperial County, California

Volume I: Report

DRAFT VERSION

August 2017

Prepared for:

Titan Solar II, LLC
750 W. Main Street
El Centro, California 92243

Prepared by:

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ASM Project Number 28540

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USGS 7.5-minute Borrego Mountain SE, Harpers Well quadrangles; approximately 373 acres

Keywords: Borrego Mountain SE and Harpers Well 7.5-minute quadrangles, lithic scatter, ceramic scatter, Salton Sea, San Sebastian, San Felipe Creek, Tarantula Wash

PN 28540
September 2017

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NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Authors:	Shelby Castells, M.A., RPA and Joel Lennen, M.A., RPA
Firm:	ASM Affiliates, Inc.
Client/Project Proponent:	Titan Solar II, LLC
County Permit Numbers:	
Report Date:	August 2017
Report Title:	Cultural Resource Inventory for the Seville 4 Solar Project, Imperial County, California
Type of Study:	Record Search, Literature Review, and Pedestrian Survey
New Sites:	JL_S_1, JL_S_2, JL_S_3, JL_S_4, JL_S_5, JL_S_6, JL_S_7, JL_S_8, JL_I_3, JL_I_4, JL_I_6A, JL_I_6B
Updated Sites:	P-13-001266 / IMP-1266, P-13-008586 / IMP-8009, P-13-008587 / IMP-8010, P-13-008606 / IMP-8029, P-13-009941 / IMP-10004, P-13-009942 / IMP-10005, P-13-014438
USGS Quads:	Borrego Mountain SE and Harpers Well
Acreage:	Approximately 373 acres surveyed
Keywords:	Borrego Mountain SE and Harpers Well 7.5-minute quadrangles, lithic scatter, ceramic scatter, Salton Sea, San Sebastian, San Felipe Creek, Tarantula Wash

MANAGEMENT SUMMARY

Titan Solar II LLC (Titan II) proposes to develop the Seville 4 Solar Project (Project), a nominal 20-megawatt alternating current solar photovoltaic (PV) energy generation project, on up to approximately 181 acres of land in northwestern Imperial County, California. The electrical energy produced by the Project will be conducted through a proposed 12.5- or 34.5-kV generator intertie ("gentie") line and delivered to the Imperial Irrigation District (IID) through a 12.5-kV/92-kV or 34.5-kV/92-kV Project substation and the IID 92-kV switch Station.

This study was performed in compliance with the California Environmental Quality Act (CEQA); the Renewable Energy and Transmission Element, County of Imperial General Plan (Imperial County Planning and Development Services Department 2015); and the Final Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update Mitigation Monitoring and Reporting Program (MMRP). Imperial County is the lead agency.

A records search at the South Coastal Information Center (SCIC) of the California Historical Resources Information System (CHRIS), was performed for the project and a 1-mi. buffer on July 22, 2017. One hundred and forty-one cultural resources have been previously recorded within the 1-mi. record search buffer, and seven cultural resources (six archaeological sites and one prehistoric isolate) have been previously recorded within the survey area. A record search of the Sacred Lands File held by the California Native American Heritage Commission (NAHC) was conducted on June 21, 2017, and had negative results. However, the NAHC stated that the survey area is sensitive for potential tribal cultural resources.

A systematic pedestrian survey of the survey area was performed by ASM from July 31 to August 2, 2017 by a crew of three ASM Archaeologists and a Native American Monitor. The survey area is located in agricultural fields that have been subject to disturbances, within the currently developed solar field access road and substation areas, and in previously undisturbed lands. Visibility within the survey area was excellent.

In total, 18 cultural resources have been identified within the survey area including 13 archaeological sites, and five isolates. Of the 13 archaeological sites, six were previously recorded, two of the previously recorded sites have been combined into one site, and eight archaeological sites were newly recorded. One isolate was previously recorded and four isolates were newly recorded. During the survey two of the previously recorded sites, P-13-008587/IMP-8010 and P-13-9942/IMP-1005, were not relocated. The remaining previously recoded sites were relocated during the survey. None of the sites have been previously evaluated for eligibility to the California Register of Historical Resources (CRHR) or for significance under CEQA. The five prehistoric isolates within the survey area are not eligible for listing on the CRHR and are not significant resources under CEQA

As required by the CEQA Guidelines and by the MMRP of the Renewable Energy and Transmission Element, CUL-1d, avoidance or evaluation of all archaeological sites that may be impacted by the proposed Project is recommended. No further work is recommended for the isolates. In addition, as required by the MMRP Mitigation Measures CUL-1d and CUL-3, archaeological monitoring by a qualified archaeologist and a Native American monitor is recommended for any ground-disturbing activities within the survey area.

1. INTRODUCTION

This report documents the results of a cultural resource survey for the Seville 4 Solar Project (Project) which was conducted to provide compliance with California Environmental Quality Act (CEQA), the Renewable Energy and Transmission Element, County of Imperial General Plan (Imperial County Planning and Development Services Department 2015) and the Final Programmatic Environmental Impact Report, Imperial County Renewable Energy and Transmission Element Update Mitigation Monitoring and Reporting Program (MMRP). Imperial County is the lead agency. The purpose of the study was to identify if any cultural resources are present within the survey area that are significant under CEQA and are eligible for listing on the California Register of Historical Resources (CRHR).

PROJECT DESCRIPTION AND LOCATION

Titan Solar II LLC (Titan II) is proposing to develop the Seville 4 Solar Project, a nominal 20–megawatt alternating current (MW_{AC}) solar photovoltaic (PV) energy generation project on up to approximately 181 acres of land in northwestern Imperial County, California. The Project would be located on a portion of Imperial County Assessor Parcel Number (APN) 018-170-057-000, Lot 8 of Tract Map No. 00988. (Figures 1-4). The electrical energy produced by the Project would be conducted through a proposed 12.5-kV or 34.5-kV generator intertie ("gentie") line and delivered to the Imperial Irrigation District (IID) through a 12.5- kV/92-kV or 34.5-kV/92-kV Project substation and the IID 92-kV switch station.

The Project is located approximately 8 mi. west of the junction of State Highway 78 and State Highway 86, and approximately 3 mi. east of the San Diego county line. The complete survey area, including the proposed collector station, 34.5-kV gentie, and the Titan Solar substation is located within Sections 14, 15, 22, 23, and 25, Township 12 South, Range 9 East, San Bernardino Base and Meridian and is shown on the USGS 7.5' Harper's Well and Borrego Mountain SE quad maps.

The Project proposes to utilize either thin film or crystalline solar photovoltaic (PV) technology modules mounted either on fixed frames or horizontal single-axis tracker (HSAT) systems. The fixed-frame PV module arrays would be mounted on racks that would be supported by driven piles. The depth of the piles would be dependent on the recommendations of the geotechnical report prepared for the Project. The fixed-frame racks would be secured at a fixed tilt of 25º +/- 5º from horizontal facing a southerly direction. Current Project design would have individual PV modules, each approximately 3.25 ft. wide by 6.5 ft. long (depending on the specific PV technology selected), mounted two high on a fixed frame, providing 3.0 ft. ground clearance and resulting in the tops of the panels at a maximum of 8.5 ft. above the ground.

Figure 3 is a preliminary site plan which shows the fixed PV modules arranged in arrays spaced approximately 20 to 25 ft. apart (pile-to-pile) to maximize performance and to allow access for panel cleaning (if necessary). These arrays would be separated from each other and the perimeter security fence by nominal 20-ft.-wide roads.

If HSAT technology is used, the PV modules would rotate around the north-south HSAT axis so that the PV modules would continue to face the sun as the sun moves across the sky throughout the day (Figure 4). The PV modules would reach their maximum height (up to 13.5 ft. above the ground, depending on the final design) at both sunrise and sunset, when the HSAT is rotated to 60º from horizontal to point the modules at the rising or setting sun. At noon, or when stowed during high winds, when the HSAT system is rotated so that the PV modules are horizontal, the maximum height would be about 10.75 ft. above the ground, depending on the final design. Current Project design would have individual HSAT PV modules each approximately 3 ft. wide by 5.5 ft. long (depending on the specific PV technology selected), mounted on a frame which is attached to an HSAT system.

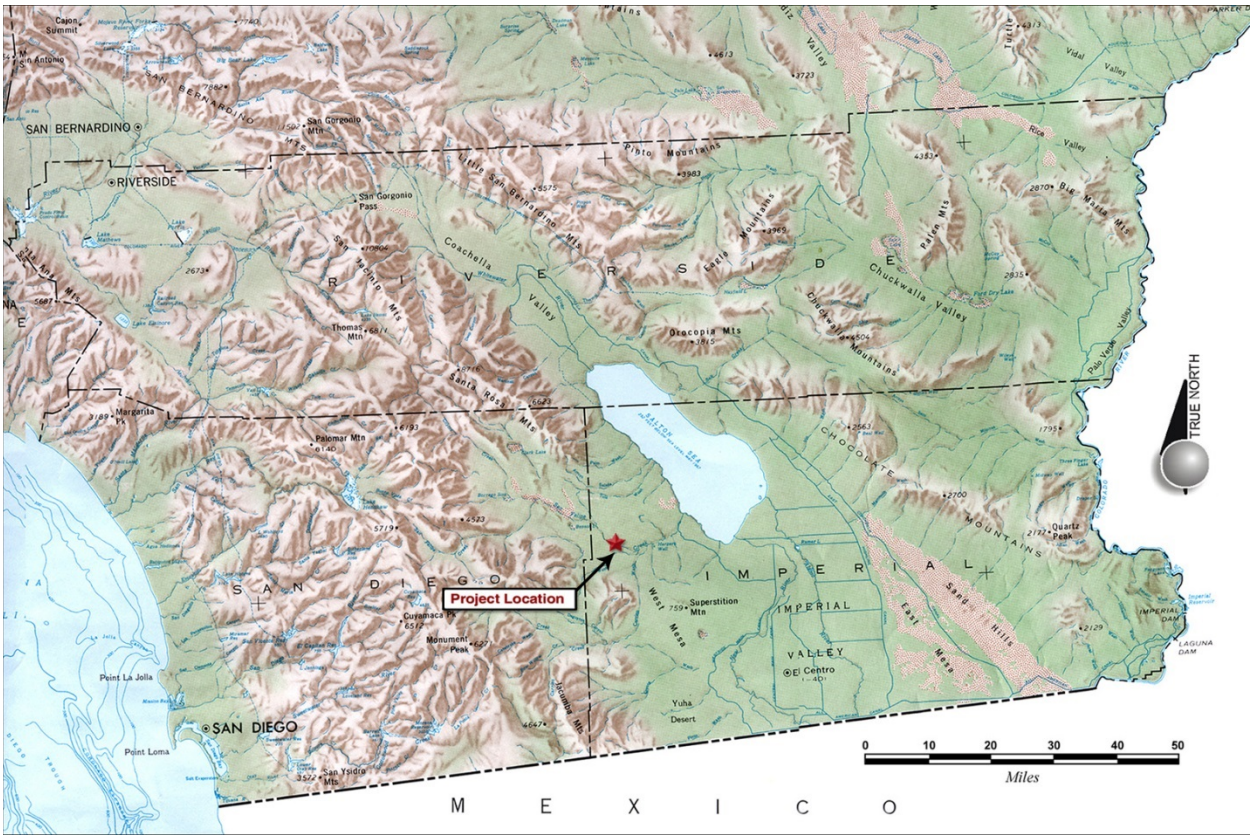

Figure 1. Project vicinity map.

The individual PV systems would be arranged in large arrays by placing them in columns spaced approximately 10 ft. apart to maximize operational performance and to allow access for panel cleaning and maintenance. These HSAT arrays would be separated from each other and the perimeter security fence by nominal 20-ft.-wide roads, consistent with agency emergency access requirements.

STUDY PERSONNEL

The following individuals were instrumental in conducting the investigations and producing this report.

Shelby Gunderman Castells, ASM Director (M.A., Anthropology, San Diego State University), RPA, served as Principal Investigator and Project Manager. Joel Lennen, ASM Associate Archaeologist (M.A., Anthropology, New Mexico State University), RPA, served as field director. ASM Field Technicians Joseph Arnold and Julian Armen served as archaeology crew. The Native American Monitor was Gabe Kitchen, with Redtail Monitoring and Research, Inc.

South Coastal Information Center (SCIC) staff performed the record search of the California Historical Resources Information System (CHRIS).

Native American Heritage Commission (NAHC) staff performed the record search of the Sacred Lands File.

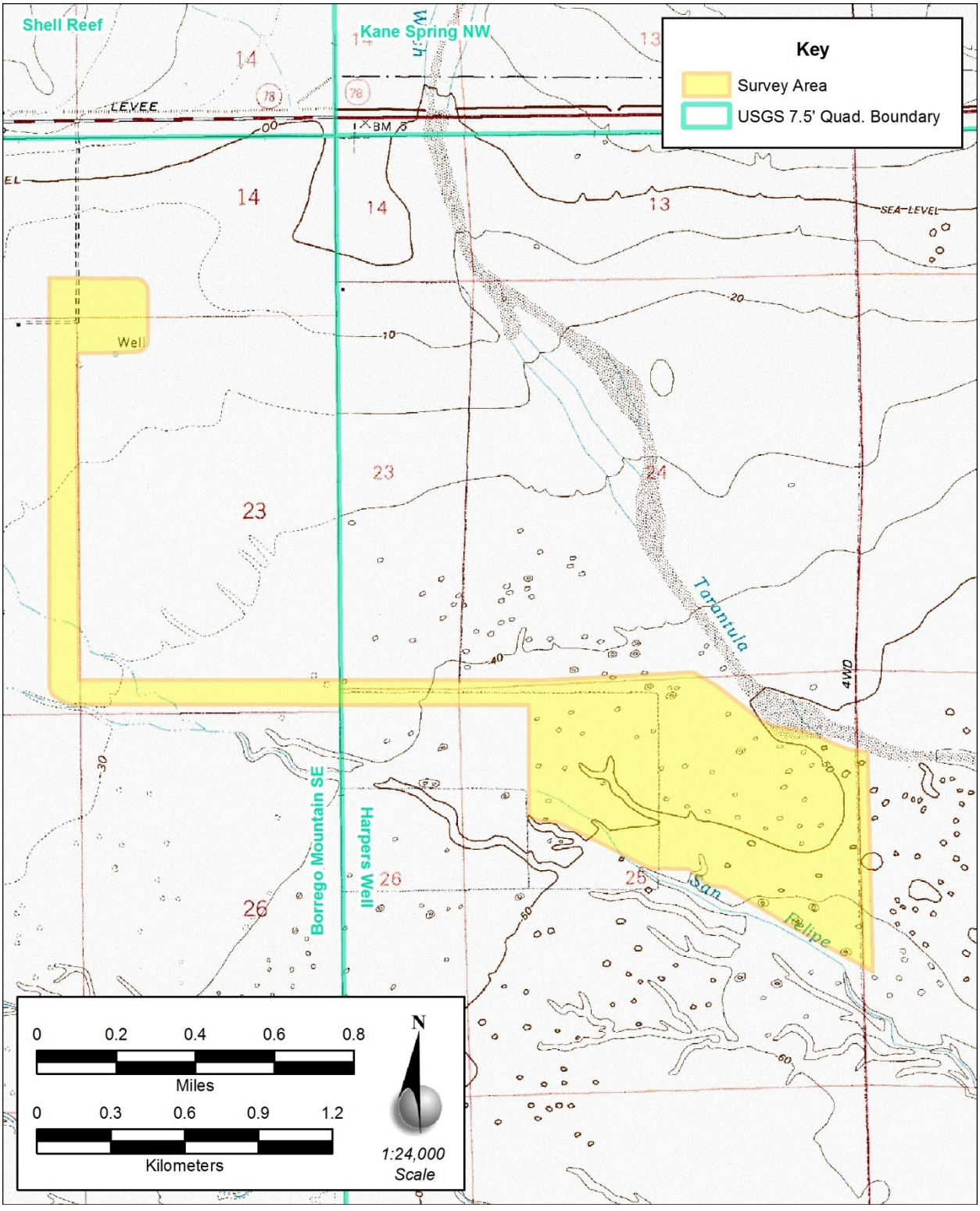

Figure 2. Project location, shown on the USGS 7.5' Topographic Quad Map.

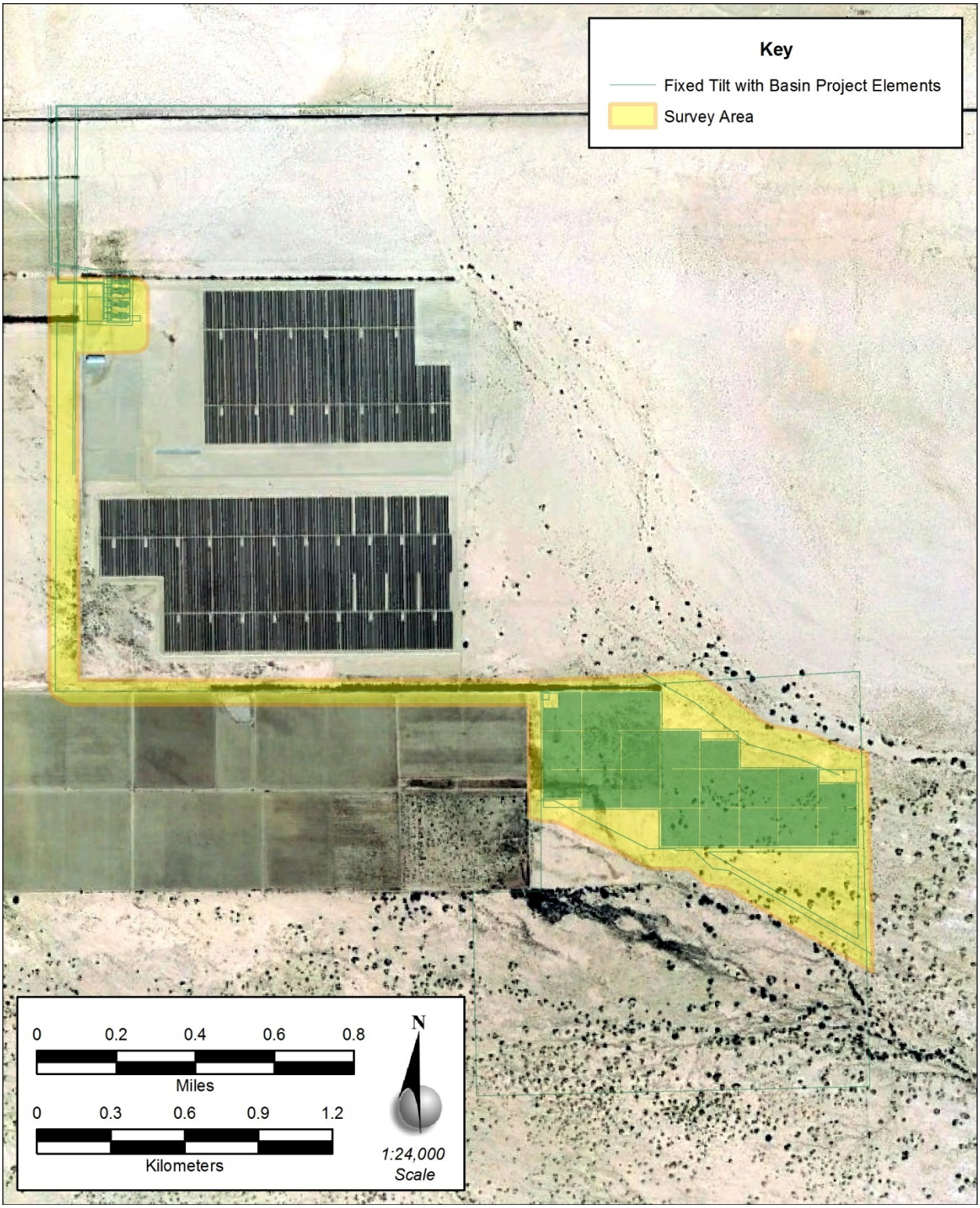

Figure 3. Project survey area and the Fixed PV project design, shown on an aerial photograph.

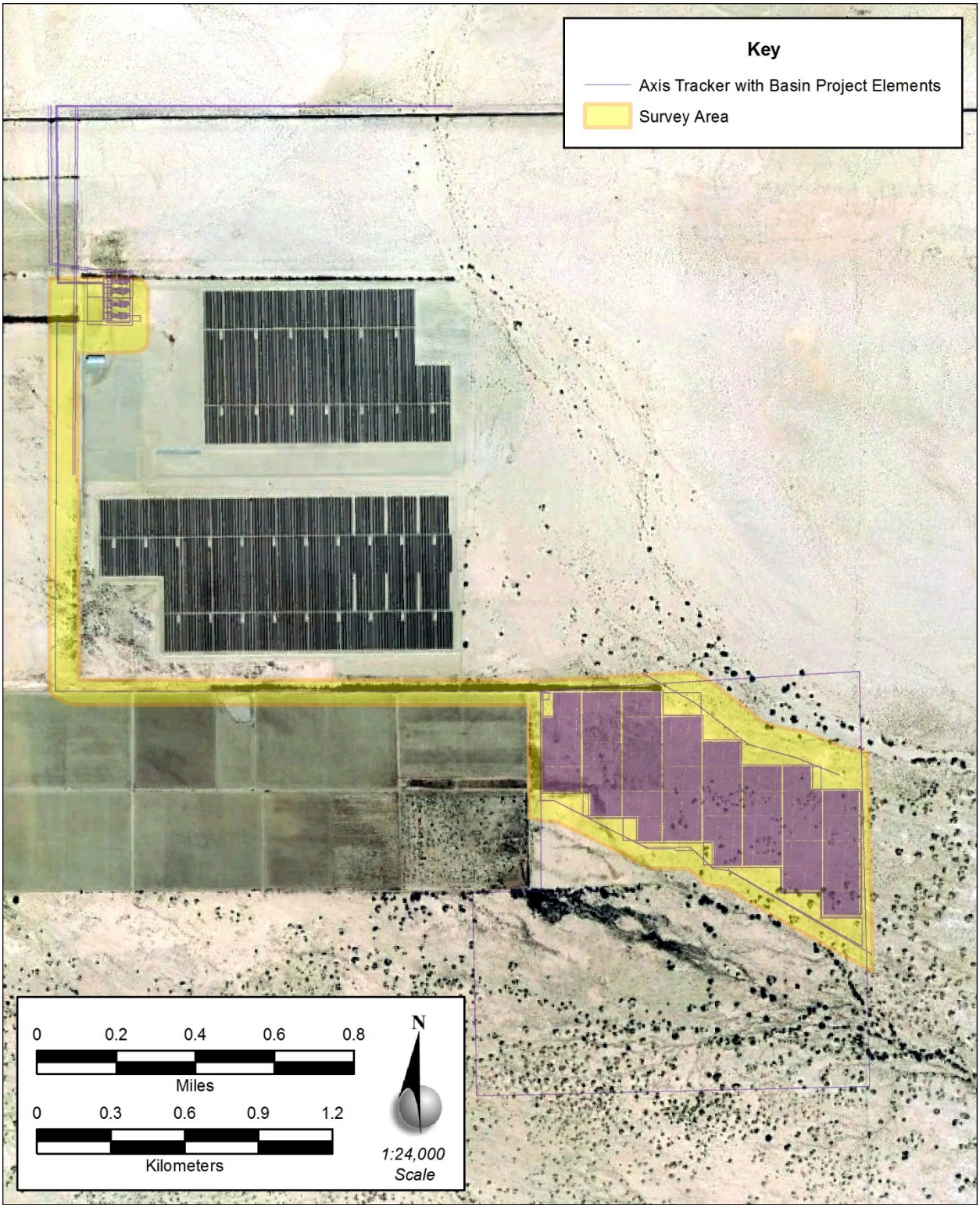

Figure 4. Project survey area and the HSAT PV project design, shown on an aerial photograph.

2. SETTING

NATURAL SETTING

Geology and Soils

The surface geology of the survey area is relatively simple, consisting entirely of Quaternary alluvium (Jennings 1967; Morton 1977). These deposits are likely entirely Holocene in age. Additional underlying geologic formations include Lake Cahuilla Sediments and the Brawley Formation, an older deposit of sedimentary rocks. Soils within the survey area include Vint fine sandy loam, Meloland fine sand, Rositas fine sand (0 to 2 percent slopes), Glenbar clay loam, and Indio-Vint complex (USDA 2017).

Climate

The survey area is located within the western portion of the low-lying Colorado Desert, part of the larger Sonoran Desert, in the rain shadow of the Peninsular Ranges, and consequently its climate is generally very hot and dry. In Brawley the average maximum temperature in July is 107ºF, and average low in January is 39ºF. Annual precipitation amounts to only 2.65 in. (6.7 cm).

Topography

The survey area lies in the Salton Basin within the Colorado Desert. The basin is a large fault-framed graben formed at the interface of the North American and Pacific tectonic plates. The trough has been filled by immense quantities of colluvial and alluvial sediments that are in some places up to 20,000 ft. (6,000 m) deep (Morton 1977). Natural northward diversions of the Colorado River into the Salton Trough during the Holocene resulted in the periodic formation of an extensive freshwater lake known as Lake Cahuilla that drowned the locations now occupied by the modern sites of Indio, Brawley, El Centro, and Mexicali. Lake Cahuilla covered the entire survey area, which lies approximately 16 to 56 ft. below sea level.

The only substantial water sources in the region are the Colorado River, the New and Alamo Rivers, and Lake Cahuilla when it was in existence. Permanent springs and creeks can exist in the canyons that come out of the Peninsular Ranges, but vast lowland areas are dry except during mild winter storms or occasional localized summer monsoon thunderstorms. San Felipe Creek, which formerly ran along the southern boundary of the survey area, was one of the major drainages, originated in the eastern slopes of the Peninsular Ranges near Julian, and which was part of a sufficiently large catchment area to sustain surface water throughout the year (Lebo et al. 1982). Seasonal surface water also can be found for short intervals in washes and ephemeral pans. San Sebastian Marsh is one of the largest of the low-elevation spring sources at the confluence of San Felipe Creek and Fish Creek, located at 120 ft. below sea level and on the desiccated bed of Lake Cahuilla, several miles to the east of the survey area. The area surrounding San Sebastian was under 180 ft. of water during Lake Cahuilla high stands, but during recessional phases, the creeks cut through upper layers of clays, silts, and sand to expose the aquifer where a marshy habitat developed. Its groundwater base flow reaches 0.2-0.3 $ft.^3$ per second during the spring runoff. San Felipe Creek is one of the few perennial streams in the region, although water flow is most robust in the spring and diminishes during the summer-fall months. Tarantula Wash is located along the northeastern boundary of the survey area.

Flora and Fauna

Natural plant and animal life in the western Colorado Desert is characteristic of the Lower Sonoran life zone. Major vegetation communities include creosote bush scrub and saltbush scrub. Individual plants in these vegetation communities are widely spaced and provide little ground cover. Some portions of the desert have no visible plants and consist of shifting sand dunes or nearly sterile salt flats. Depending on the

duration and intensity of rainfall, perennial and annual species will vary. Currently the survey area is approximately 20 percent covered by various grasses, catclaw, mesquite, and other scrub plants. Ground surface visibility across much of the survey area was approximately 80 to 90 percent.

The most common low-desert animals of economic importance to native peoples were black-tailed jackrabbits (*Lepus californicus*), cottontails (*Sylvilagus audubonii*), ground squirrels and other rodents, various lizards, pronghorn antelope (*Antilocapra americana*), and mule deer (*Odocoileus hemionus*). During stands of Lake Cahuilla, prehistoric people were especially attracted to the western Colorado Desert because of the availability of various Colorado River fish species such as bonytail chub (*Gila elegans*), razorback sucker (*Xyrauchen texanus*), Colorado pike minnow (*Ptychocheilus lucius*), and striped mullet (*Mugil cephalus*). Various migratory waterfowl were also caught, including coots (*Fulica americana*) and ducks (Jaeger 1965). During the archaeological survey, only a few native animals were noted in the survey area, including lizards and black-tailed jackrabbits.

Paleoenvironments

Pleistocene and Holocene Climate and Biota

Evidence concerning earlier environmental conditions in the Colorado Desert is still very limited. Pollen-bearing, stratified deposits from caves or lakebeds are not as common in the Colorado Desert as in the Great Basin, where most of the desert climatic reconstructions have been based. The best information comes from investigations of plant microflora in fossil packrat (*Neotoma* sp.) middens along the Colorado and Gila Rivers and extending across the Sonoran Desert to the east (King and Van Devender 1977; Van Devender 1990; Van Devender and Spaulding 1979, 1983). Of greatest relevance to the low elevations of the Colorado Desert are the stratified fossil packrat middens in the Wellton Hills (elevation 160-180 m), Hornaday Mountains (240 m), Butler Mountains (240-255 m), Picacho Peak (300 m), Tinajas Altas Mountains (330-580 m), and Whipple Mountains (320-525 m). Van Devender (1990) provided an authoritative review and reconstruction of climate and vegetation over the last 14,000 years from these investigations, summarized below. The focus here is on data that are specific to the lower Sonoran Desert.

The data from below 1,000 ft. (300 m) indicate that the lower Colorado River valley, and presumably the Salton Trough as well, may have been a refugium for Lower Sonoran creosote scrub habitat during the Pleistocene, but also containing the frost-resistant Mojavean species (Cole 1986). The region would have resembled Joshua Tree National Monument until 10,000-9000 B.P., when the Colorado-Mojave desert boundary moved north to its present location and modern vegetation associations were established. Mojavean species persisted at some locations in the early Holocene and indicate a transitional period from colder and wetter to more xeric conditions. Some investigators have interpreted the paleoenvironmental record to suggest that El Niño effects were more intense and stronger at this time, but with little effect from summer monsoons in the Salton Trough. The extent to which very hot and dry extremes affected the lowlands remains problematical, and such effects may have been mitigated to some extent by the Colorado River and by possible infillings of Lake Cahuilla. The same may be true of late Holocene climatic fluctuations such as the Medieval Climatic Anomaly, which lasted from around A.D. 800 through the great drought of A.D. 1209-1350 (Jones et al. 1999). Drought impacts on mountain and coastal areas are now well established from tree-ring analyses, and there may well have been direct and indirect ramifications for desert dwellers on the western side of the Salton Trough. Episodes of cooler and wetter conditions are also documented through a number of paleoenvironmental indices and in historical accounts. The most recent episode was the Little Ice Age, the effects of which were felt between about A.D. 1450 and 1850.

At higher elevations, between 1,000 and 2,000 ft. (300-600 m), packrat midden analyses indicate a juniper woodland habitat in the Late Pleistocene between 22,000 and 11,000 B.P. These xeric woodlands continued through the early Holocene, finally ascending to higher elevations during the middle Holocene. They were replaced with the current creosote scrub and desert riparian habitat at that time.

The Salton Trough, when not filled by Lake Cahuilla, probably contained much the same alkali sink habitat it has had recently throughout the Quaternary, although no paleoenvironmental data are available to directly confirm this.

Lake Cahuilla

As the Colorado River made its way toward the Gulf of California, it released its sediments onto a vast and growing delta. This gradual accumulation of sediments raised the overall height of the delta, particularly after large flood events. What followed during certain episodes was the diversion of the river's flow into the Salton Trough, resulting in the formation of a vast freshwater lake, variously referred to as Blake Sea, Lake LeConte, or Lake Cahuilla. The lake continued to rise until it reached the lip of the impounding delta, currently at 12 m above sea level, and the waters, less those lost to evaporation from the lake, could again flow south to the Gulf. The low-gradient, deltaic conditions at the lake's input channel were then poised to produce a new shift in the river's course, this time away from the lake and directly south toward the Gulf.

At least six Late Pleistocene infillings of Lake Cahuilla have left relic maximum shorelines at elevations between 52 and 31 m above sea level. The latest and lowest of these shorelines is tentatively radiocarbon dated at 26,000 B.P., but none of the Pleistocene stands are known to have cultural associations. Lake Cahuilla may have continued to form and then recede throughout the middle Holocene; archaeological remains are found in association with the lake as far back as 5000 B.P. (Schaefer 1994).

Late Holocene stands of Lake Cahuilla are somewhat better documented. The lake is known to have been present at times but not continuously during the millennium prior to A.D. 1000 (Love and Dahdul 2002; Waters 1983; Wilke 1978). Radiocarbon, stratigraphic, and historical evidence indicates that the lake underwent at least three cycles of filling and recession between ca. A.D. 1200 and 1700 (Laylander 1997). When present, the lake offered a range of resources, including freshwater fish, aquatic birds, freshwater mollusks, and shoreline plants. Its rises and falls, extending over decades and radically transforming the region's resource potential, created a uniquely unstable human environment.

CULTURAL SETTING

Prehistory

The following outline of Colorado Desert culture history largely follows a summary by Jerry Schaefer (2006). It is founded on the pioneering work of Malcolm J. Rogers in many parts of the Colorado and Sonoran Deserts (Rogers 1939, 1945, 1966). Since then, several overviews and syntheses have been prepared, with each succeeding effort drawing on the previous studies and adding new data and interpretations (Crabtree 1981; Schaefer 1994; Schaefer and Laylander 2007; Wallace 1962; Warren 1984; Wilke 1976).

Four successive periods, each with distinctive cultural patterns, may be defined for the prehistoric Colorado Desert, extending back in time over a period of at least 12,000 years. They include: Early Man (Malpais), Paleoindian (San Dieguito), Archaic (Pinto and Amargosa), and Late Prehistoric (Patayan).

Early Man Period (Malpais Pattern) (ca. 50,000 to 12,000 B.C.)

The Malpais Pattern is represented by archaeological materials that have been hypothesized to date between 50,000 and 10,000 B.C. (Begole 1973, 1976; Davis et al. 1980; Hayden 1976). The term was originally used by Rogers (1939, 1966) for ancient-looking cleared circles, tools, and rock alignments that he later classified as San Dieguito I. Malpais continued to be applied to heavily varnished choppers and scrapers found on desert pavements of the Colorado, Mojave, and Sonoran deserts that were thought to predate Paleoindian assemblages that included projectile points. Although few would question that most of the artifacts are culturally produced, dating methods remain extremely uncertain and have been assailed on

numerous grounds (McGuire and Schiffer 1982:160-164). Arguments for early settlement of the Colorado Desert have been further eroded by the redating of the "Yuha Man." Originally dated to over 18,000 B.C. based on radiocarbon analysis of caliche deposits, more reliable dates based on the accelerator mass spectrometry (AMS) radiocarbon method applied to bone fragments now place the burial at about 3000 B.C. (Taylor et al. 1985).

Paleoindian Period (San Dieguito Pattern) (ca. 12,000 to 5000 B.C.)

The earliest chronologically distinctive archaeological pattern recognized in most of North America is the Clovis pattern. Dated to around 11,500 B.C., Clovis assemblages are distinguished by fluted projectile points and other large bifaces, as well as extinct large mammal remains. Fluted points have reportedly been found in the Yuha Desert, Cuyamaca Rancho State Park, Ocotillo Wells, Lost Valley, and Chuckwalla Valley, although not yet in independently dated contexts (Davis and Shutler 1969; Kline 2014; Kline and Kline 2007; Rondeau 2007).

Most of the lithic assemblages, rock features, and cleared circles in the Salton Basin were routinely assigned to the San Dieguito Phase III complex by many of the initial investigators. Rogers first distinguished the San Dieguito pattern in western San Diego County, based initially on surface surveys and subsequently refined through excavations at the C. W. Harris Site (Rogers 1929, 1939, 1966). His extensive surveys subsequently identified the pattern in the southern California deserts. Rogers proposed three phases of the San Dieguito complex in its Central Aspect, which encompassed the area of the Colorado and Mojave deserts and the western Great Basin. The successive phases were characterized by the addition of new, more sophisticated tool types to the pre-existing tool kit.

San Dieguito complex lithic technology was based on percussion flaking of cores and flakes. San Dieguito I and II tools include bifacially and unifacially reduced choppers and chopping tools, concave-edged scrapers (spokeshaves), bilaterally notched pebbles, and scraper planes. Appearing in the San Dieguito II phase are finely made blades, smaller bifacial points, and a larger variety of scraper and chopper types. The San Dieguito III tool kit is appreciably more diverse, with the introduction of fine pressure flaking; tools include pressure-flaked blades, leaf-shaped projectile points, scraper planes, plano-convex scrapers, crescentics, and elongated bifacial knives (Rogers 1939, 1958, 1966; Warren 1967; Warren and True 1961). Various attempts have also been made to seriate cleared circles into phases, but no convincing chronological scheme has yet emerged (Pendleton 1986).

Because of the surficial character of most desert sites and the scarcity of good chronological indicators, it has been difficult to test the validity of Rogers' San Dieguito I, II, and III phases as chronologically successive changes in the tool kit of a long-lived culture. Some of the variations may have developed contemporaneously in response to particular functional, ecological, or aesthetic requirements. Subsequent excavations at the C. W. Harris site in coastal San Diego County also failed to confirm Rogers' original observation of a stratigraphic separation between Phase II and Phase III assemblages (Warren 1967:171-172). Rogers (1966:39) also identified different settlement patterns characteristic of each phase, but as Vaughan (1982:6-11) argued, these distinctions were inadequately defined and inconsistently applied. The phase model may be tested and refined, but at present the application of phase distinctions does not appear to be warranted.

The San Dieguito pattern appears to reflect a hunter-gatherer adaptation consisting of small mobile bands exploiting small and large game and collecting seasonally available wild plants. An absence of milling stones has been seen as reflecting a lack of hard seeds and nuts in the diet, and as a diagnostic cultural trait distinguishing the San Dieguito pattern from subsequent Desert Archaic patterns (Moratto 1984; Rogers 1966; Warren 1967). Portable manos and metates are now being increasingly identified at coastal sites radiocarbon dated earlier than 6000 B.C. and in association with late San Dieguito assemblages. Arguments have also been made for the presence of a developed grinding tool assemblage during early periods, based

on finds from the Trans-Pecos area of Texas (Ezell 1984). In regard to the Colorado Desert, Pendleton (1986:68-74) remarked that most ethnographically documented pounding equipment for processing hard seeds, wild mesquite, and screwbeans were made from wood and would not be preserved in the archaeological record.

Site distributions also suggest some of the basic elements of San Dieguito settlement patterns. Sites might be situated on any flat area, but the largest aggregations occurred on mesas and terraces overlooking major washes. Where lakes were present, sites are located around the edges. These were areas where a variety of plant and animal resources could be found and where water would have been at least seasonally available.

Archaic Period (Pinto and Amargosa Patterns) (ca. 5000 B.C. to A.D. 500)

The Pinto and Amargosa patterns were regional specializations within the general hunting and gathering adaptations that characterized the Archaic period. These patterns occur more frequently in the northern Great Basin, the Mojave Desert, and the Sonoran Desert east of the Colorado River. Few Pinto or Amargosa (Elko series) projectile points have been identified on the desert pavements in the Colorado Desert, although that condition is beginning to change as the number of investigations increases. Some late Archaic sites are known, indicating occupations along the boundary between the low desert and Peninsular Range and at more favored habitats.

It has been suggested that the environment in the California deserts was unstable and inhospitable during this period, particularly during the so-called Altithermal period between 5000 and 2000 B.C., and that this condition forced mobile hunter-gatherers into more hospitable regions (Crabtree 1981; Schaefer 1994; Wilke 1976). The paleoenvironmental data discussed above do not have the resolution to detect such drastic conditions. Also, as mentioned, Lake Cahuilla may have mitigated Altithermal effects on human occupation in the Colorado Desert.

Several Archaic sites have been excavated in recent years. The most substantial Colorado Desert site dated to this period is Indian Hill Rockshelter in Anza-Borrego Desert State Park. At that site, 1.5 m of cultural deposits were excavated below a Late Prehistoric component (McDonald 1992). Particularly significant were 11 rock-lined cache pits and numerous hearths indicative of either a residential base or a temporary camp where food storage was integral to the settlement-subsistence strategy. Also recovered were numerous Elko Eared dart points, flaked lithic tools, and milling stone tools, as well as three inhumations, one of which was radiocarbon dated to 4070 ±100 B.P. Two rock-lined pits similar to those at Indian Hill Rockshelter, along with an accompanying late Archaic assemblage, were excavated at a small rockshelter in Tahquitz Canyon near Palm Springs (Bean et al. 1995). The small number of artifacts at the site suggested strategically stored food processing equipment that was used by a small, mobile group. Several important late Archaic sites recently have been documented in the northern Coachella Valley (Love and Dahdul 2002). Deeply buried midden deposits with clay-lined features and living surfaces, cremations, hearths, and a rockshelter deposit have been found at various sites in association with calibrated radiocarbon dates ranging from before 1000 B.C. to A.D. 700. Radiocarbon dates of almost 1000 B.C. and associated bird and fish bone confirm a Late Archaic period Lake Cahuilla occupational horizon, as well as Archaic period interlacustral phases. Larger habitation sites remained elusive in the Colorado Desert until 2006, when a series of deeply buried midden deposits and some house features were discovered under alluvial fan and dune formations at the very northern end of the Coachella Valley at Seven Palms near Desert Hot Springs (Mariam Dahdul, personal communication to Jerry Schaefer 2006). These findings bring Colorado Desert cultural history more in line with comparable late Archaic patterns in the Mojave Desert and Owens Valley.

Early projectile points in Imperial County have generally been reported only as isolates on desert pavements, but a recent inventory at the Salton Sea Test Base produced a cluster of early projectile points including Lake Mojave, Pinto/Gatecliff, and Elko forms, and even two eccentric crescents, scattered among protohistoric sites on the bed of Lake Cahuilla 30 m below sea level (Apple et al. 1997; Wahoff 1999). If

these points are in situ, as the investigators suggest, presumably they escaped burial by lake sediments or were subsequently reexposed. An alternative explanation may be that they were collected elsewhere and reused by protohistoric occupants. Several Archaic points have also been reported within the Truckhaven area. Direct evidence of an Archaic occupation comes from the Truckhaven flexed burial (IMP-109), found under a cairn and dated to 5790 ±250 B.P. (Taylor et al. 1985; Warren 1984:404).

The emerging picture of late Archaic occupation in the Salton Basin is of mobile hunter and gatherer bands with atlatls for hunting and milling stones for seed and nut processing, operating out of a limited number of base camps in optimal areas on the boundaries of the Salton Basin and on the shoreline of Lake Cahuilla. This Archaic pattern may be viewed as a cultural precursor of the Late Prehistoric period, although linguistic data and tribal origin stories suggest some demographic displacements in the late prehistoric past.

Late Prehistoric Period (Patayan Pattern) (ca. A.D. 500 to 1700)

Sites dating to the Late Prehistoric period are probably more numerous than any other in the Colorado Desert. The period has been divided into four phases, including a pre-ceramic transitional phase from A.D. 500 to 800. The major innovations were the introduction of the bow and arrow circa A.D. 500, of pottery production using the paddle-and-anvil technique around A.D. 800, and the introduction of floodplain agriculture on the Colorado River, perhaps at about the same time (Rogers 1945). Within the Colorado Desert, according to some investigators, ceramics first appear around A.D. 1000 (Love and Dahdul 2002). Exact dating for the presence of early domesticated plants is not available (Schroeder 1979). Both these technological advancements were presumably introduced either directly from Mexico or through the Hohokam culture of the Gila River (McGuire and Schiffer 1982; Rogers 1945; Schroeder 1975, 1979). The most recent Late Holocene episodes of Lake Cahuilla have been taken to define the Patayan II phase, bracketed by Patayan I and III phases and previously dated between about A.D. 1050 to 1500. However, recent research has demonstrated that a lake infilling occurred between A.D. 1600 and 1700 (Laylander 1997; Schaefer 1994). The now-confirmed presence of lake stands both before A.D. 1050 and after A.D. 1500 casts some doubt on the viability of the perceived Patayan phase distinctions.

Hargrave (1938) coined the term “Patayan” from the Walapai word for “old people” to refer to the late prehistoric archaeology of the Colorado River Valley. In so doing, he wanted to avoid assumptions that specific prehistoric cultures in this area were directly ancestral to the modern Yuman cultures. The Patayan pattern is equally applicable to the prehistoric ancestors of the desert Cahuilla, who speak an unrelated language but whose culture shares many of the economic and technological attributes of the cultures of the Yuman speakers.

Colton (1945:118) applied a direct historical approach to developing a Patayan culture scheme. Relying on very little information, for the most part no more than surface sherd scatters, he made an initial attempt at defining a Patayan pattern. Assuming that the ethnohistoric practice of intense warfare among Colorado River peoples extended back into the prehistoric past, he postulated that the center for the dispersion of Patayan peoples to the east and west lay on the Colorado River and was brought about by high population densities of warlike communities that were circumscribed by inhospitable desert conditions. The Ipai, Kumeyaay, and Tipai of California and the Havasupai, Walapai, and Yavapai of western Arizona were some of these offshoots. The presumption was that these people had spread into other areas by the same process of warfare that later drove the Kahwan, Halyikwamai, and Halchidhoma off the river to become ultimately amalgamated with the Maricopa on the Gila River. Colton also revised Kroeber’s (1943) classification of river and delta Yuman languages to propose a southern branch (Laquish) centered on the Colorado Delta and a northern branch (Cerbat) centered on the Needles area. In another paper, Colton tentatively classified the Cohonina and Prescott patterns as branches of Patayan in the mountains of northwestern Arizona.

While Colton's cultural scheme focused on Arizona, Rogers established the first systematic culture history and artifact typologies for the Colorado Desert in California, but also including evidence from western Arizona. Rogers' (1936, 1945) investigations of Yuman ceramics and culture history remain fundamental for archaeological research in the region. He distinguished three phases of Late Prehistoric archaeology in the Colorado Desert as Yuman I, II, and III, with Yuman II being contemporary with the late Holocene phase of Lake Cahuilla between around A.D. 1000 and 1500.

Also included in this early period of basic archaeological research is Schroeder's examination of lower Colorado River sites (Schroeder 1952, 1979). Schroeder (1961) excavated the Willow Beach site, located just below Boulder Canyon, one of the few stratified Late Prehistoric sites known on the Colorado River. He developed a cultural sequence that emphasized the similarities of the Colorado River assemblages with the upland areas of western and central Arizona, lumping a number of cultural patterns into the concept of the Hakataya pattern, an expanded version of Rogers' Yuman pattern (Schroeder 1979). Some scholars found Schroeder's concept of the Hakataya to be too inclusive and also noted conflicts with Rogers' original Yuman ceramic typology (see McGuire and Schiffer 1982). Schroeder (1957, 1958, 1975) also postulated associations between subdivisions of the Hakataya pattern, certain ceramic types, and historically identified tribal groups. These branch-ceramic-tribal associations include, among others, the linking of the Roosevelt branch, Tonto Brown pottery, and the Southeast Yavapai; the Cerbat branch, Cerbat Brown, and the Walapai; the La Paz branch, Needles Buff, and the Halchidhoma; the Palo Verde branch, Tumco Buff, and the Quechan; the Amacava branch, Parker Buff, and the Mojave; and the Salton branch, Topoc Buff, and the eastern Kumeyaay. This approach may give insufficient consideration to the mobility of some groups, who may have produced different ceramic types depending on the proximity of particular clay types to seasonal settlements.

The term "Patayan" regained prominence with the publication of Hohokam and Patayan by McGuire and Schiffer (1982). They provide a critical history of the development of the terminology and cultural concepts. Michael R. Waters (1982a, 1982b) applied the term to a preliminary ceramic chronology and typology for the Colorado Desert, based on Rogers' unpublished notes and type collection at the San Diego Museum of Man. Waters also critically discussed differences between Rogers' and Schroeder's approaches, both in the definition of prehistoric cultures and in the application of a Lower Colorado River Buff ceramic typology.

Within the Late Prehistoric period, between A.D. 1000 and 1700, desert peoples of this region developed wide-spectrum and diversified resource procurement systems emphasizing a collector organization using residential bases and temporary logistical camps, scheduled according to the ripening seasons of staple plant resources. Mobility was an important element in this pattern, with frequent travel between the Colorado River and Lake Cahuilla, when the lake was present.

The diversity of sites and assemblages associated with Lake Cahuilla indicate considerable variability in Late Prehistoric and protohistoric social and ecological adaptations to the lake (Wilke 1978). The number of house pits at fish camps ranges from one to more than a dozen, perhaps indicating the number of households in residence at any one time or resume of an area. Fish traps range from single examples to long lines that are suggestive of cooperative fishing ventures.

Archaeologically excavated house pits indicate that some have developed middens and diverse artifact types, suggestive of season-long temporary camps, while others have only sparse artifact associations suggestive of short-term fishing expeditions. Faunal assemblages vary from those largely limited to fish bone or the remains of migratory water birds, to others that contain more diverse resources, including rabbit and large mammal bone. This variability in site types and assemblage contents has yet to be correlated in a systematic manner with other variables, such as the recessional stages of Lake Cahuilla (reflected in elevation), localized geography and paleoenvironments, ethnicity, or other factors.

The numerous trail systems throughout the Colorado Desert attest to long-range travel to special resource collecting zones and ceremonial locales, trading expeditions, and possibly warfare. Pot drops, trailside shrines, and other evidence of transitory activities are associated with these trails (McCarthy 1993). Trade and travel is also seen in the distribution of localized resources such as Obsidian Butte obsidian, wonderstone from the south end of the Santa Rosa Mountains, soapstone, marine shell from the Gulf of California and the Pacific coast, and ceramic types. The Elmore site near Kane Springs, for example, contained evidence of *Olivella* shell bead manufacturing and other shell processing, trade, craft specialization, and possibly cultural connections with delta Yumans who may have been displaced during Lake Cahuilla infillings (Laylander 1997; Rosen 1995; Schaefer 2000).

Ethnography

The ethnographic summary of the vicinity of the survey area is summarized from Schaefer and Quach 2013. Early ethnohistoric information of the general area is primarily derived from the accounts of the Juan Bautista de Anza expeditions in 1774 and 1775-1776 (Lawton 1976; Schaefer et al. 1987) concerning the ethnohistoric village of San Sebastian which lies to the east of the survey area. These accounts of the Indian village at San Sebastian constitute the first detailed descriptions of native life in the desert area. Providing information on population size, social structure, relations with other tribes, and subsistence practices, these are invaluable narratives of ethnohistoric lifeways at San Sebastian before there was any appreciable impact from European colonization. Though the survey area lies approximately 4 mi. west of this ethnohistoric village, the survey area still nonetheless lies within the general transportation and travel corridor utilized by those crossing to and from this village during ethnohistoric times and is therefore relevant towards understanding of any prehistoric cultural elements that may be encountered within the current survey area.

Various accounts from these initial expeditions provided several important observations. The people were alarmed when the Spanish were first encountered, suggesting that they had little familiarity with the Spanish. A population of 400 was reported for San Sebastian village, constituting a substantial population size for this region, with the accounts that also substantiate the presence of a chief or captain. This individual was probably a clan chief or *kwaipai*. His presence suggests that San Sebastian served as the residential base of a clan or *cimuL*, but with such a large population, the village was probably also occupied by members of other clans, as appears to have been the rule. The early accounts described the local language encountered as being related somewhat to the Yuma (Quechan) tongue. Although speaking a language similar to the Colorado River Yumans, a condition of enmity was observed to have existed between the two groups.

Fr. Francisco Garcés' account of his travels in 1775 in this region provides some important details concerning the tribal affiliation of the people he encountered. He recognized some of the people of this large village site from an earlier visit several years before at a fishing camp on the Gulf of California and at another occupation site in the Peninsular Ranges. This observation suggests that some people of San Sebastian were tied to other desert Kumeyaay residential sites to the south in Baja California. The diary of Fr. Juan Díaz includes additional observations stating that the people of San Sebastian lived on mesquite beans, together with the mescal that they brought from the sierra, and the rabbits that they hunted, which for them was very easy (Bolton 1930, II:280). This accounts suggests that San Sebastian was part of a seasonal round of occupation sites and that the period from early spring to summer were the optimal periods of occupation when the mesquite pods began to ripen and the Chenopodiaceae set seed. At that time larger numbers congregated at San Sebastian, breaking up into smaller groups when resources became sparse. When the population was sparse, the occupants may have represented individuals who could not travel for some reason or the core social and residential unit that claimed San Sebastian. The uprising at Mission San Diego in 1775 may have also forced them to avoid areas more accessible to Spanish soldiers.

San Sebastian continued to be visited by Spanish colonists between 1776 and 1781. From ethnohistoric accounts over 300 people used the Anza trail in this period. The inhabitants of San Sebastian had opportunity for exposure not only to European material culture and ideas, but also European diseases. Members of the last Spanish immigrant groups to use the trail arrived at Mission San Gabriel in August 1781 with smallpox (Bancroft 1886, I:343). It was just before this group crossed the Colorado River that the Quechan rose up against the two newly established missions near Yuma. On July 17 and 18, 1781, they destroyed both sites and killed many of the inhabitants, among them Díaz and Garcés of the earlier Anza expeditions. This rebellion would effectively close the Anza trail until the American period.

San Sebastian is next noted in the diary of Cayetano Limón, who led that last group of Spanish colonists. Reaching the Colorado River in August, 1781, they noted the presence of destroyed missions as well the abandonment of San Sebastian. This caused Governor Felipe de Neve of California to suspect the residents of San Sebastian had joined the Quechan in their uprising against the Spaniards (Bancroft 1886, I:365; Lawton 1976:53). More likely the inhabitants of San Sebastian were either occupying other areas or deliberately avoiding contact in those troubled times, since previous accounts suggest that they and the Quechan were not on good terms, unless conditions had changed.

Additional details about San Sebastian emerge from the accounts of the Spanish punitive expedition against the Quechan in 1781-1782. Led by Lieutenant Colonel Pedro Fages, the expeditionary force left the presidio of Pitic in central Sonora on September 16, 1781. Having fulfilled some of their objectives after two separate operations, and before retreating in the face of superior numbers, they proceeded west to San Diego, stopping at San Sebastian Marsh on March 15, 1782. What is notable about Fages' route is the decision to choose a new route to San Diego via Carrizo Creek, Agua Caliente (in Anza Borrego State Park), San Felipe (Vallecito), Mason Valley, and over the Cuyamaca Mountains to San Diego (Lawton 1976:55). This route would be among a number of attempted new passages between the Colorado River and the coast, all of which bypassed San Sebastian. San Sebastian appears to have regained its isolation from Europeans for the next 60 years. A new overland route was eventually established in the 1820s that partially followed Fages' detour and came within 10 km of San Sebastian. The residents probably followed patterns of other desert groups, avoiding contact but raiding settlements for cattle and goods, as suggested by historical accounts relating to nearby Native settlements such as San Felipe (see Lawton 1976; Schaefer et al. 1987:46-52). It is likely that mortality rates rose from exposure to European diseases and population sizes dwindled, particularly after the smallpox epidemic of 1862 and the severe drought of 1863-1871. San Sebastian, however, would have remained as a place to practice traditional lifeways with little interference from the quickly changing world around it.

Historical evidence of Native occupation at San Sebastian is scant. One source is the 1854-1856 U.S. Government Land Survey map that was drawn when the township and section lines were established for the area. An Indian rancheria was shown in Section 27 close to the marsh where the largest of the archaeological sites has been recorded. There is no certainty that the rancheria was occupied at that time, but contemporary maps from other townships routinely show Indian settlements that are known from other sources to have been occupied at that time of mapping. Unfortunately, the surveyors notes on file at the Bureau of Land Management, Riverside do not make any reference to any cultural features. Another feature of interest is the Mormon Trail that runs north-south through Section 27 and less than 1 mi. from the rancheria. This route continued to be a secondary road through the nineteenth century and was apparently used in 1849 by Mexican General Flores during his retreat from California (Warren and Roske 1981:10-11). The Indian village appears once again on an 1869 U.S. military map of southern California roads and trails (Pourade 1964:38-39). This map suggests that the village continued to support a population for at least a decade longer than previously assumed by Schaefer et al. (1987:52). Soon thereafter, it can be presumed the dwindling native population fused with other communities like Vallecito, Agua Caliente, or those along the New and Alamo Rivers. Physical evidence of mid-nineteenth-century occupation comes

from several archaeological sites at San Sebastian that contain a mix of European and traditional Indian remains, as well as domestic animal bone (Schaefer et al. 1987).

By the time Spier (1923:300-302) could document any facts about the area, all he could determine was that lower San Felipe Creek had once been occupied by the *Litc* lineage of Kumeyaay, which had recently gone extinct as a social group. *Litc* territory once continued west up San Felipe Creek into the mountains. Spier (1923:299) also provided the only place name for San Sebastian. His consultant, Jim McCarty, who was active in Kumeyaay events of the 1850s, referred to Harpers Well as *tamu'k watcuKa'Rt* (red willow).

The Kumeyaay/Kamia

Fray Pedro Font on the 1775-1776 Anza expedition identified the occupants of San Sebastian, located 4 mi. east of the survey area, at the confluence of San Felipe and Fish Creeks, as *Jecuiches* (Bolton 1930:130), while Garcés used the term *Cajuenches* (Coues 1900:42). The former term was used when the Spaniards were clearly in Cahuilla territory, while the latter was used in reference to Yuman speakers such as the Kumeyaay. There appears to be some confusion on the Franciscans' part and for subsequent interpreters of their writings as to whether they were describing Cahuilla or Kumeyaay at San Sebastian (Luomala 1978:607). The Anza expedition accounts identify the occupants as Yuman-speaking people who nevertheless had a hostile relationship with the Quechan at that time. This situation appears to have changed over time, as chronicled by White (1974). The Cahuilla appear to have intermingled with the Kumeyaay to some extent. Anza and Font both report on December 16, 1775 that several Indians from the Santa Rosa Mountains in the core of Cahuilla territory came to visit San Sebastian the previous day and stole three horses when they left. The Spaniards chased them to two villages about two and four leagues (9.6-18.5 mi.) away from San Sebastian on what appears to have been the slopes of the Santa Rosa Mountains (Lawton 1976:52). The horses were found tied to a mesquite tree in a wash, and the few remaining inhabitants denied stealing them.

Ethnographic information by Spier (1923:304) indicates that this area was in the territory of the Kumeyaay *Litc* clan in the nineteenth century. According to Shipek (1982), the southern limit of the Desert Cahuilla extended to San Felipe Creek, apparently favoring Font's identification of the inhabitations of San Sebastian. According to Schaefer et al. (1987), descriptions of the people and their associations with groups to the south in Baja California and with gathering territories to the west strongly indicate Kumeyaay occupation at the time of Spanish contact There appears to be little doubt that San Felipe Creek was in Kumeyaay territory, with the Cahuilla to the north in protohistoric and ethnohistoric times. It is indicated as such by Bean (in Schaefer et al. 1987), Bean (1978), Spier (1923), Strong (1929), and Luomala (1978).

Major ethnographies for the Kumeyaay and the desert branch of the group, the Kamia, were researched and written in the 1920s and 1930s (Spier 1923; Gifford 1918, 1931), about 150 years after the establishment of the mission system. By this time, many traditions were known only by memory or were practiced in modified form on the small mountain reservations (Cline 1984). The Kamia had been largely integrated into the Quechan tribe on the Colorado River. Luomala (1963:285-286, 1978) suggested that residence was not strictly patrilocal, but bilocal, in that newly married couples resided with the woman's family as often as not. This type of flexibility may have been a cultural response to environmental stresses such as drought (Shipek 1981:297), or a result of reduced population and territory after historic contact.

The Kumeyaay are depicted primarily as hunters and gatherers in ethnographic and ethnohistoric documents, but some groups practiced agriculture in areas of the Imperial Valley (Gifford 1931:21-22). Shipek (1989) has hypothesized that horticultural practices among the Kumeyaay were widespread and intensive, involving transplantation and cultivation of several native plant species. There is still some controversy regarding the degree of dependence these groups placed on cultivated crops versus natural crops. Review of the ethnographic and ethnohistoric record indicates that most groups moved to different

areas on a seasonal basis to capitalize on particular crops such as acorns or agave, and were not wholly dependent on any one crop.

Animal resources for the Kumeyaay consisted mostly of small game such as rabbits (*Sylvilagus* spp.), hares (*Lepus californicus*), woodrats (*Neotoma* spp.), lizards, some snakes, and grasshoppers (Gifford 1931:14; Shipek 1991:32; Spier 1923:335-336). Many birds probably were not eaten (Drucker 1937:8), although this restriction seems to apply mostly to shorebirds. Eagles and buzzards were avoided; hawks, owls, doves, crows, roadrunners, and mockingbirds were sometimes avoided and sometimes not (Drucker 1937:8, 1941:100). Fish (in some springs and streams) were not ignored, although these probably contributed to the diet in proportionally smaller amounts as other food sources (Orcutt 1888a:2, 1888b:4). Larger game, mostly mule deer (*Odocoileus hemionus*) and possibly pronghorn (*Antilocapra Americana*), now locally extinct) were also hunted.

Different Kumeyaay lineage groups followed varying seasonal routines, probably relying upon staple foods that were common to the lineage home area. Hicks (1963:214) assumed that the majority of aboriginal Kumeyaay lineage locations would have been in the mountains near oak groves, rather than in the desert or desert foothills where agave is more plentiful, but cited only Spier (1923) and not Gifford (1931). Archaeological surveys have helped illustrate that villages were commonly located near reliable water sources and at contact areas between biotic zones (May 1975; Shackley 1980).

History

Exploration and Initial Development

The survey area has generally been marginal to major historic period events in the Colorado Desert (Lawton 1976). The wider region first came to the attention of Europeans in 1539, when Francisco de Ulloa reached the northern limit of the Gulf of California, In 1540 Hernando de Alarcón sailed up the lower Colorado River at least as far as present-day Yuma, and Melchior Díaz traveled overland from Sonora to reach and cross the river. The portions of the desert west of the Colorado River were first visited only as late as the 1770s, when Francisco Garcés and Juan Bautista de Anza pioneered a route from the Colorado River to coastal southern California.

Mention has already been made of the 1846 and 1856 US GLO survey party led by H. S. Washburn. Cattle rustlers using the old Anza trail throughout the early American period may have camped here (Beattie 1925; Warren and Roske 1981:10-11).

In the late 1800s, the federal government sponsored individual land development in the west in the form of a series of acts, including the Homestead (1862), Timber-Culture (1873), Desert Land (1877), and Timber and Stone (1878) Acts (Robinson 1948:168-172). Most settlers in the desert depended on artesian wells in 1894, which made sustained irrigation efforts difficult. Hydraulic well drilling began in Indio in 1898 and offered another method of water collection for settlers (Nordland 1978:54; Redlands Institute 2002).

More cattle camps were established from the 1880s to the early 1900s, as what became the Julian-Kane Springs road saw cattle drives between the Peninsular Ranges and Imperial Valley (Reed 1986; Sherman 1982:231). In 1901, Harpers Well was drilled in a mistaken effort to find oil. This was one of several oil exploration projects at the time (Bowers 1901). The well did expose a new potable water source that supported several homesteads and a roadhouse along Julian-Kane Springs Road near Harpers Well. Improvements to the road around 1910 facilitated other ventures.

About 3.5 mi. west of Harpers Well, the small hamlet of San Felipe was created around 1910. In 1918 it included a derrick, a house, a shed, and a couple of homesteaders (Lindsay and Lindsay 1998:147). By 1920 it was abandoned (Brown 1920:33).

Further west, the town of Little Borrego was developed at the intersection of Julian-Kane Springs Road and Split Mountain Road. It was developed by Tom Hawn, an Alhambra realtor. The Borrego Hotel was built in 1924. Soon to follow were a general store, a service station and garage, a barber shop/pool hall, and a combined school and realty office building. The venture failed in the Great Depression (Lindsay and Lindsay 1998:146-148).

The Borrego Hotel was bought in the 1930s by a quack medical practitioner, Eugene P. Woillard. Renamed the Miracle Hotel, Woillard offered treatment of medical conditions with radium water and electricity. He used to make house calls in his Model T Sedan, the Princess Radium Health Car, until he drove it off a cliff on Yaqui Pass Road in the late 1930s, ending his life and the business of the Miracle Hotel. Little remains of Little Borrego except for some cement slabs and trash scatters.

At Harper's Well, an angora goat ranch was operating in the 1930s, and from it portions of the corral still stand. The Seventh Cavalry also camped there in 1937 or 1938. With the emerging agricultural development of Imperial Valley and speculative developments to the west, the Julian-Kane Springs Road must have been an important local transportation route until 1932. In the winter of that year, a rare snowstorm ruined the road and it was soon bypassed by Highway 78 (Sherman 1982).

Creation of the Salton Sea

The 1905-1907 flood was simultaneously destructive and creative: it destroyed the irrigation system in the Imperial Valley and created the contemporary Salton Sea. The flooding occurred from the Alamo Canal and extended through the Imperial and Coachella Valleys to fill a portion of the Salton Sink. This story begins with the development of the Imperial or Alamo Canal as an effort by the California Development Company (CDC), headed by Charles Rockwood and George Chaffey, to channel Colorado River water to Imperial Valley (Dowd 1956; MacDougal 1914; Rockwood 1909). They began operation in August 1900. The CDC's right to tap the Colorado River was jeopardized in 1903 when the river was declared a navigable waterway and therefore under federal control. These actions led to a period of conflict between the CDC and the U,S. Reclamation Service. The CDC pursued an alternate route outside the United States, since it would be impossible to obtain a water diversion permit from Reclamation. A new intake south of the U.S.-Mexican border was expected to solve the problem of the silted and ineffective Alamo Canal. Efforts to open this diversion without a permanent concrete headgate coincided in 1905 with an unusually rainy year, causing the Colorado River to redirect itself westward, forcing 360 million ft.^{3} of water per hour into the Imperial Valley (Ní Ghabhláin and Schaefer 2005:7-8; Starr 1990:36-37). The series of floods in the spring of 1905 forced the CDC to close the Mexican cut with a series of dams, but money ran out and limited engineering capabilities further burdened the situation. The Southern Pacific Railroad, which owned the CDC after June 1905, fought the disastrous floods during 1905-1907. Only monumental and extremely expensive efforts from the Southern Pacific Railroad finally diverted the Colorado River back to the Gulf of California (Ní Ghabhláin and Schaefer 2005:8; Starr 1990:36, 40). In the spring of 1907, the flooding caused the Southern Pacific to reroute 40 mi. of the railroad track located within the Salton Sea from Mecca to Niland. Fill and rock protected the Salt Creek trestle and the water lapped at the railroad embankment at Mecca and other locations (Laflin 1995).

Since the 1905 flood, the depth and shape of the Salton Sea have changed. Several islands were created, including South Island (1907-1913), Rocky Hill (1907-1914), and Mullet Island. By 1915, the floodwaters of the Salton Sea receded and prompted the transformation of South Island and Rocky Hill into parts of the mainland (Redlands Institute 2002:29). In 1943, surface water level was at 241 ft. below sea level. The contemporary outlet from the New River did not extend into the Salton Sea within protective levees. Mullet Island had become incorporated into the mainland as a small peninsula. In August 1955, the surface water level was at 234.5 ft. below sea level (Blackburn 1936).

The incoming floodwaters that created the Salton Sea began as fresh water. However, the lower portion of the Salton Sink already contained significant levels of salt, and the floodwaters crossed over saline agricultural fields in the Imperial Valley. A high rate of evaporation progressively concentrated the salts, and the Sea became increasingly saline. In the summer of 1914, the salt levels took a toll on the fish that had been carried in during the 1905-1907 flood. Dead carp and bass washed ashore (Laflin 1995). The first saltwater fish introduced and successfully established in the Salton Sea was the orangemouth corvina, with shortfin corvina and gulf croaker introduced at a later stage. Establishing an ecological balance has been an inherent part of the challenge in maintaining the Salton Sea.

Over the years, the Salton Sea became a recreational hotspot in the desert. The lake in the desert attracted entrepreneurs such as Gus Eilers and John Goldthwaite, a bay area promoter. They acquired land from the Southern Pacific Railroad along the north shore from the Mortmar train stop to the Sea in 1926. They planned Date Palm Beach, a development that started out small, trying to attract motorboat racers. In 1929, boat racers set five world records at the first boat races at Date Palm Beach. Hydroplane racing innovations took place on the Salton Sea in the late 1920s because the low elevation aided carburetion. Eilers survived the 1929 stock market crash and built his first set of guesthouses in 1932. He still catered to the motorboat enthusiasts, and Mrs. Eilers served the small community. She included Coachella Valley produce – grapefruits and dates – as part of her hospitality. In 1946, cinematographer C. Roy Hunter bought the resort and renamed it Desert Beach. Hunter founded the Desert Beach Yacht Club, but the rising Sea in 1948 stunted recreational growth. The additional waters from floods and agricultural runoff ultimately overtook the Desert Beach improvements (Laflin 1995; Redlands Institute 2002).

Desert Beach hosted the Salton Sea Speed Boat Regatta in 1949 and again in 1951. Helen's Beach House offered 1950s tourists and real estate speculators a lakeside retreat and relaxation. In 1955, Salton Sea State Park was dedicated as the second largest California State Park. In the late 1950s, A. Penn Phillips founded Salton City, expecting the same success he achieved in developing the desert community of Hesperia. The first nine holes of a champion golf course opened in 1963, and the addition of a Salton Bay Yacht Club seemed to signify resurgence at the Salton Sea. Phillips' desert community project sold numerous lots with few homes built on them. During 1950 to 1970, the recreational activities made the state park the second most popular destination in California, but the popularity eventually faded due to the imbalances of the Sea (Laflin 1995; Redlands Institute 2002).

One year after the establishment of the Salton Sea State Park, the Sea stood at 234.5 ft. below sea level. Although the Imperial Irrigation District made efforts to stabilize it, salinity levels increased in the 1980s. The Salton Sea Task Force grew out of the recognition that the quality of the water required action, and in 1993 that task force became the Salton Sea Authority. This newly established coalition combined the efforts of Riverside and Imperial Counties, the Coachella Valley Water District (CVWD), and the IID. Additionally, Congressman Sonny Bono formed a Congressional Salton Sea Task Force in 1997, and in 1998 the Salton Sea National Wildlife Refuge was renamed after the late congressman (Salton Sea Authority 1997).

Survey Area and Vicinity History

The following history of the agricultural development within the vicinity of the survey area is taken from a document prepared by Environmental Management Associates (EMA) (2013). Much of the information comes from unpublished reports, as cited, but also from recent interviews by EMA with Joe Allegretti, Jr. and Mike Morgan (the tenant of Allegretti). The proposed substation, proposed gentie, proposed collector station, and the westernmost proposed solar panels are within the former agricultural development summarized below. The eastern proposed solar panels are located on previously undisturbed desert land.

Ted Jacobs began development of the property, which was locally known as the "Ranch Oasis" or "Jacobs Ranch" in the 1950s. During the initial development, two wells were dug in 1953, known as then as "San

Felipe Well" and "Jacobs Domestic Well," with initial farming of the Jacobs Ranch beginning in 1954 (Borrego Water District 2012). A 1995 investigation states, "For the period from 1954 to 1973, about 320 acres of ground had been cleared and leveled for farming" (Krieger 1995). During the 1960s, three additional water wells were drilled on the Property and "San Felipe Well" was converted to a USGS monitoring well. Sometime during this time period or the later the "Jacobs Domestic Well" fell into disuse, as a 1995 hydrogeologic study (Krieger 1995) reported that the "Jacobs Domestic Well" had by then been "long abandoned." A 1970 Water Supply Analysis (Koebig & Koebig 1970) reports that crops such as alfalfa, barley, oats, citrus, date palms, grapes and tomatoes have been farmed on the property, though the 1995 hydrogeologic study (Krieger 1995) also noted high yields of Sudan Grass until the late 1970s.

It is clear from aerial photographs in the EMA 2013 report that the farm underwent relatively continuous expansion until 1978, when the farmed area of the property reached its current boundaries. A 1978 aerial of the property shows clear subdivision of the fields along with the establishment of an irrigation system. The aerials between 1973 and 1978 also show the construction of a north-south berm on the western edge of the property to stop flooding and overflow from the upper tributaries of San Felipe Creek. This in effect diverted any overflow southward into the lower tributaries of the Fish Creek drainage.

The ownership and management of the farm was passed to Allegretti & Company, which renamed the property Allegretti Farm in 1981. Aerial photographs from 1984, 1987, and 1992 show continuous farming of this property, with the agricultural focus on the far southern fields as well as the southern portions of the northwestern fields (EMA 2013). From the aerial photographs, it is also clear that use of the northeastern fields declined during this period. In 1993, the use of the property was leased to Morgan Ranches/Kelomar, Inc., which grew melons, onions, alfalfa, wheat, safflower, arugula, asparagus, milo, and carrots. Initially flood irrigation was utilized by Morgan, but it was gradually replaced by drip and sprinkler systems with associated structural infrastructure such as bordering ditches to collect and reuse agricultural tail water. Agricultural focus during this period mirrored the land use history previously undertaken by Allegretti & Company, with the far southern fields with richer soils more intensively utilized than the northeastern fields with gravelly soils, which accordingly were kept fallow. The farm was certified as an organic farm in 2001 by the California Certified Organic Farmers.

Sometime in the early 2000s, a climax was reached in an ongoing dispute over water rights between Allegretti & Company (as well as their tenant Morgan Ranches/Kelomar) and the County of Imperial over the conditional use permit limiting the amount of aquifer ground water that could be extracted from the activation of a well on the property. The argument by Allegretti & Company was that the limitations on the amount of ground water extracted from wells on their own property would have the effect of conditionally limiting the potential agricultural output and usefulness of the land on Allegretti Farm, thereby constituting an act of taking. The ongoing dispute was finally brought before the California Fourth District Court of Appeals, which ruled that the imposed limitations did not constitute an act of categorical *physical* taking and that arguments for the imposed limitations as a form of categorical *regulatory* taking was also specious as it did not have an effect of completely annulling *all* economically viable use of the property (O'Rourke 2006). This ruling would prove to be of some historic import to legal scholars, as this case is still intensively analyzed as an example of the growing intersection between property and water rights as well as environmental regulation (Frank 2007). The farm was then leased in 2010 by Oasis Organics, which grew onions, wheat, safflower, and milo.

3. RECORD SEARCHES

SCIC RECORDS SEARCH

Record searches of the CHRIS system were conducted at the SCIC on July 22, 2017. The search encompassed the survey area and a 1-mi. record search radius around it. Fourteen previous cultural resource studies have been conducted within the survey area and 1-mile record search radius, two of which addressed the survey area directly (Table 1). Less than 25 percent of the survey area has been previously surveyed for cultural resources

Table 1. Cultural Resource Surveys within the Record Search Area

Report No.	Authors	Date	Title	Relation to Survey Area
IM-00206	Von Werlhof, Jay	1980	The Archaeological Examinations of Proposed Access Roads for Ranch Oasis, Ltd.	Outside
IM-00354	Department of Parks and Recreation	1986	Ocotillo Wells East Acquisition Final Environmental Impact Report	Outside
IM-00658	Schaefer, Jerry, Drew Pallette, and Collin O'Neill	1998	Archaeological Survey for a Shoulder Widening and Pavement Rehabilitation Project on State Route 78, Imperial County, California	Outside
IM-00660	Crafts, Karen C.	1998	Historic Property Survey Report - Negative Findings for the Pavement Rehabilitation and Shoulder Widening of a Thirteen Mile Section of State Route 78	Outside
IM-00714	Schaefer, Jerry and Ken Moslak	2000	An Inventory and Evaluation of Lake Cahuilla Cultural Resources along Imperial Irrigation District's Sa-Line, San Diego and Imperial Counties, California	Outside
IM-00752	Caltrans	2001	Historic Property Survey Report for Biological Mitigation Parcels Associated with State Route 86 Projects Imperial County, California	Outside
IM-00789	Sapphos Environmental	2002	Sa-Line Transmission System Maintenance Repair/Replacement Project - Environmental Assessment	Outside
IM-00790	Sapphos Environmental	2002	Sa-Line Transmission System Maintenance Repair/Replacement Project - Environmental Assessment	Outside
IM-00979	Underwood, Jackson	2003	Archaeological Survey of Four Rio-Tel Cellular Tower Locations: Tamarisk, Hawk 2e, Holtville, and Blu-In-Park Imperial County, California	Intersect
IM-01208	SWCA Environmental Consultants	2008	Cultural Resources Inventory for the Bureau of Land Management California Desert District in Imperial, Riverside, and San Bernardino Counties, California	Intersect
IM-01348	Schaefer, Jerry	2006	A Class I Cultural Resources Inventory of the Truckhaven Geothermal Leasing Area, Imperial County, California	Outside
IM-01350	Noah, Anna and Dennis Gallegos	2008	Final Class III Archaeological Inventory for the SDG&E Sunrise Powerlink Project, San Diego and Imperial Counties, California	Outside
IM-01496	Mealey, Marla	2012	Archaeological Site Reexamination and Reconnaissance at Ocotillo Wells State Vehicular Recreation Area, 2008 through 2011	Outside

One hundred and forty-one cultural resources have been previously recorded within the record search area. Seven cultural resources, two of which were combined into one resource have been previously recorded within or adjacent to the survey area (Table 2).

Table 2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
000003	3	AP3: Ceramic Scatter	Treganza, 1956	Outside
000899	899	AP2: Lithic Scatter, AP3: Ceramic Scatter	Gallegos & Associates; Matthewson, 1856	Outside
001265	1265	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Roasting Pit, AP 16: Temporary Camp	Postillo, G., 1977	Outside
001266 (subsumed 008587)	1266 (subsumed 8010)	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	Gallegos & Associates, [IP]; Postillo, G., 1977	Intersect
001267	1267	AP3: Ceramic Scatter, AP 16: Temporary Camp	Postillo, G., 1977	Outside
001268	1268	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	Brook, R., 1977	Outside
001269	1269	AP3: Ceramic Scatter, AP11: Hearth	Brook, R., 1977	Outside
001270	1270	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	Brook, R., 1977	Outside
001271	1271	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	Brook, R., 1977	Outside
001272	1272	AP2: Lithic Scatter, AP3: Ceramic Scatter	Brook, R., 1977	Outside
001273	1273	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	Brook, R., 1977	Outside
001274	1274	AP2: Lithic Scatter, AP3: Ceramic Scatter	Brook, R., 1977	Outside
001275	1275	AP2: Lithic Scatter, AP3: Ceramic Scatter	Brook, R., 1977	Outside
001276	1276	AP2: Lithic Scatter	Brook, R., 1977	Outside
005176	5176	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearth, AP16: Milling/Lithic Work Area	Kress, M. and Mealey, M.; Dallas, H. and McAlcer, J., 1984	Outside
005181	5181	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearth	Harrison, J., McFarland, P., and Mealey, M., 2009; Dallas, H., Wheeler, T.. and Storm, D., 1984	Outside
006312	6312	AP2: Lithic Scatter	Arkush, B. and Grant, R., 1989	Outside

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
006313	6313	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP9: Burial (cremation), AP11: Hearth (fire-affected rock)	Harrison, J., 2009; Hines, P., Lund, B., Von Werlhof, J., Mroz, A., and Lucas, C., 2003	Outside
006314	6314	AP2: Lithic Scatter, AP3: Ceramic Scatter	Arkush, B. and Corbin, A., 1989	Outside
006315	6315	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP9: Burial (cremation), AP11: Hearth (fire-affected rock), AP15: Habitation Debris	Arkush, B. and Brooke, S., 2014; Hines, P., 2002; Arkush, B. and Corbin, A., 1989	Outside
006316	6316	AP2: Lithic Scatter, AP8: Stone Feature (rock ring)	Arkush, B. and Corbin, A., 1989	Outside
006334	6334	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006335	6335	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006336	6336	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006337	6337	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006338	6338	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006339	6339	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006340	6340	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006341	6341	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006342	6342	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006343	6343	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006344	6344	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006345	6345	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006346	6346	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006347	6347	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006348	6348	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006349	6349	AP16: Other (isolate)	Arkush, B. et al, 1989	Outside
006350	6350	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006351	6351	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006352	6352	AP3: Ceramic Scatter	Arkush, B. et al, 1989	Outside
006353	6353	AP16: Other (isolate)	Parker, J., 2012; Arkush, B. et al, 1989	Outside
006354	6354	AP16: Other (isolate)	Arkush, B. et al, 1989	Outside
006355	6355	AP16: Other (isolate)	Arkush, B. et al, 1989	Outside
006356	6356	AP2: Lithic Scatter	Arkush, B. et al, 1989	Outside
006389	6389	AP16: Other (isolate)	Arkush, B. et al, 1989	Outside
006561	6561	AP2: Lithic Scatter, AP3: Ceramic Scatter	ASA, 1955	Outside
008332	-	AP16: Other (isolate, milling slab)	Moslak, K., 2000	Outside

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
008354	7839	AP2: Lithic Scatter	Moslak, K., 2000	Outside
008355	7840	AP16: Other (isolates)	Moslak, K., 2000	Outside
008356	7841	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP15: Habitation Debris	Moslak, K., 2000	Outside
008361	7846	AP15: Habitation Debris	Moslak, K., 2000	Outside
008362	7847	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP15: Habitation Debris	Moslak, K., 2000	Outside
008363	7848	AP2: Lithic Scatter, AP15: Habitation Debris	Moslak, K., 2000	Outside
008364	7849	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP9: Burial (cremation), AP11: Hearth, AP15: Habitation Debris	Gallegos & Associates, [IP]; Moslak, K., 2000	Outside
008365	7850	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP15: Habitation Debris	Gallegos & Associates, [IP]; Moslak, K., 2000	Outside
008366	7851	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearths, AP15: Habitation Debris	Moslak, K., 2000	Outside
008367	7852	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP15: Habitation Debris	Moslak, K., 2000	Outside
008368	7853	AP2: Lithic Scatter, AP11: Hearths	Moslak, K., 2000	Outside
008369	7854	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP15: Habitation Debris	Moslak, K., 2000	Outside
008370	7855	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP9: Burial (cremation), AP11: Hearth, AP15: Habitation Debris	Moslak, K., 2000	Outside
008371	7856	AP2: Lithic Scatter, AP9: Burial (cremation)	Moslak, K., 2000	Outside
008372 combined with 008373	7857	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearth, AP15: Habitation Debris	Gallegos & Associates, [IP]; Moslak, K., 2000	Outside
008374	7859	AH7: Road	Gallegos & Associates, [IP]; Moslak, K., 2000	Outside
008377	-	AP16: Other (isolate, milling slab fragment)	Moslak, K., 2000	Outside
008378	-	AH16: Other (automotive fenders)	Moslak, K., 2000	Outside
008586	8009	AP2: Lithic Scatter, AP3: Ceramic Scatter	Underwood, J. and Lilburn, L., 1998	Intersect
008587 (subsumed by 001266)	8010 (subsumed by 1266)	AP2: Lithic Scatter, AP3: Ceramic Scatter	Ramirez, R., King, G., Hares, H., and Covert, J., 2008	Intersect

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
008588	8011/H	AP2: Lithic Scatter, AP3: Ceramic Scatter, AH4: Trash Scatter	Underwood, J. and Whitehouse, J., 1998	Outside
008603	8026	AP2: Lithic Scatter, AP3: Ceramic Scatter	Underwood, J. and Lilburn, L., 1998	Outside
008606	8029	AP2: Lithic Scatter, AP3: Ceramic Scatter	Underwood, J. and Lilburn, L., 1998	Intersect
009150	8400	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearth (fire-affected rock)	Collett, R., Price, H., and Underwood, J., 2005	Outside
009226	-	AP16: Other (isolate)	Gallegos & Associates, 2006	Outside
009227	-	AP3: Ceramic Scatter, AP16: Other (isolate)	Gallegos & Associates, 2008; Thomson, H. et al, 2006	Outside
009228	-	AP16: Other (isolate)	Thomson, H. et al, 2006	Outside
009519	-	AP16: Other (isolate)	Thomson, H. et al, 2006	Outside
009578	8643	AP8: Rock Feature (cairns)	Thomson, H. et al, 2006	Outside
009618	8663	AP3: Ceramic Scatter	Doose, N., Welsh, W., Huval, J., Werle, M., and Osuna, T., 2007	Outside
009782	-	AP16: Other (isolate)	Piek, L., Linton, B., and Williams, B., 2007	Outside
009783	-	AP16: Other (isolate)	Piek, L., Linton, B., and Williams, B., 2007	Outside
009941	10004	AP2: Lithic Scatter, AP3: Ceramic Scatter	Ramirez, R., King, G., Hares, H., and Covert, J., 2008	Intersect
009942	10005	AP2: Lithic Scatter, AP3: Ceramic Scatter	Ramirez, R., King, G., Hares, H., and Covert, J., 2008	Intersect
012121	10830	AP2: Lithic Scatter, AP3: Ceramic Scatter	Piek, L., 2008	Outside
012124	10833	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Other (milling implements, fire-affected rock, bone)	Piek, L., 2008	Outside
012611	11107	AP2: Lithic Scatter, AP16: Other (stone tools)	Mealey, M., Ruston, R., Dahlstedt, A., Harrison, J., and Leiser, J., 2009	Outside
012643	11122	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP8: Rock Feature, AP11: Hearths, AP16: Other (stone tools)	Hines, P., Von Werlhof, J., and Lucas, C., 2001 & 2003; Mealey, M., Ruston, R., Dahlstedt, A., Harrison, J., and Leiser, J., 2009	Outside

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
012645	11124	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP8: Rock Feature, AP9: Burial (cremation), AP16: Other (stone tools)	Von Werlhof, A., Morz, A., and Lund, B., 2003; Mealey, M., Ruston, R., Dahlstedt, A., Harrison, J., and Leiser, J., 2009	Outside
013316	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013337	11513	AP2: Lithic Scatter	Mealey, M. and Brown, K., 2010	Outside
013358	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013360	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013361	11520	AP2: Lithic Scatter	Mealey, M. and Brown, K., 2010	Outside
013363	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013368	11523	AP2: Lithic Scatter, AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013370	11524	AP2: Lithic Scatter, AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013373	11527	AP2: Lithic Scatter, AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013374	11528	AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013377	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013378	11530	AP2: Lithic Scatter, AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013396	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013397	11535	AP2: Lithic Scatter, AP3: Ceramic Scatter	Mealey, M. and Brown, K., 2010	Outside
013424	11548	AP2: Lithic Scatter, AP3: Ceramic Scatter	Mealey, M. and Brown, K., 2010	Outside
013430	11549	AP11: Hearths	Mealey, M. and Brown, K., 2010	Outside
013432	-	AP16: Other (Lithic Isolate)	Mealey, M. and Brown, K., 2010	Outside
013446	11556	AP2: Lithic Scatter, AP11: Hearths, AP16: Other (rock row)	Mealey, M. and Brown, K., 2010	Outside
013460	11564	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearths, AP19: Faunal	Mealey, M. and Brown, K., 2010	Outside
013465	11567	AP2: Lithic Scatter, AP11: Hearth (Fire-affected Rock)	Mealey, M. and Brown, K., 2010	Outside
014431	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside
014432	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
014433	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside
014434	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside
014435	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside
014436	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Cuero, R., 2013	Outside
014437	-	AP16: Other (isolate, milling slab)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014438	-	AP16: Other (isolate, milling slab)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Intersect
014439	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014440	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014441	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014442	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014443	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014444	-	AP16: Other (isolate)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014445	12151	AP3: Ceramic Scatter	Quach, T., Lambert, C., Cuero, R., Smith, N., and Salazar, F., 2013	Outside
014739	-	AH16: Other (Geodetic Survey Benchmark)	Quach, T., Lambert, C., Smith, N., and Salazar, F., 2013	Outside
014740	-	AH16: Other (Geodetic Survey Benchmark)	Quach, T. and Salazar, F., 2014	Outside
014742	-	AP16: Other (isolate)	Quach, T. and Salazar, F., 2014	Outside
014743	-	AP16: Other (isolate)	Quach, T. and Salazar, F., 2014	Outside
015079	12460	AP2: Lithic Scatter	Cassidy, J. and Elsken, H., 2016	Outside
015080	12461	AP2: Lithic Scatter	Cassidy, J. and Elsken, H., 2016	Outside
015096	12447	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP9: Burial (cremation)	Cassidy, J., Dodds, T., Baker, J., Elsken, H. and Wheeler, E., 2016	Outside

Primary Number P-13-	Trinomial CA-IMP-	Contents	Recorder, Date	Relation to the survey area
015097	12478	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Hearths/Pits	Cassidy, J., Dodds, T., Elsken, H., 2016	Outside
015114	12495	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Fire-affected Rock	Napier, A. and Elsken, H., 2016	Outside
015115	12496	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Fire-affected Rock	Napier, A. and Elsken, H., 2016	Outside
015116	12497	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP11: Fire-affected Rock	Napier, A. and Elsken, H., 2016 & 2017	Outside
015123	12504	AH4: Trash Scatter	Dodds, T. and Elsken, H., 2016	Outside
015124	12505	AP11: Hearths/Pits	Napier, A. and Elsken, H., 2016	Outside
015125	12506	AP11: Hearth	Napier, A. and Elsken, H., 2016	Outside
015126	12507	AP2: Lithic Scatter, AP3: Ceramic Scatter	Napier, A. and Elsken, H., 2016	Outside
015127	12508	AH4: Trash Scatter	Napier, A. and Elsken, H., 2016	Outside
015128	12509	AP2: Lithic Scatter	Napier, A. and Elsken, H., 2016	Outside
015285	12589	AP11: Hearth	Veasey, A. and Elsken, H., 2016	Outside
015290	12594	AP2: Lithic Scatter, AP3: Ceramic Scatter	Napier, A. and Elsken, H., 2017	Outside

P-13-001266 / IMP-1266

The site was originally recorded by Postolla in 1977 as a scatter of flakes, sherds, and some fire-affected rock. Subsequent surveys resulted in the expansion of site boundaries of IMP-1266, in addition to combining several other previously recorded sites: IMP-1267, IMP-1270, IMP-1271, IMP-1272, IMP-1273, IMP-1274, IMP-1275, IMP-1276, and IMP-8010. These sites were subsumed under the trinomial CA-IMP-1266. The site was re-located by Gallegos and Associates, and the boundary of the site was expanded to include a 530-x-1,300-m area. Gallegos and Associates identified IMP-1266 as a large habitation site, with 630+ pieces of flaked lithic debitage, 600+ pottery sherds, one metavolcanic projectile point base fragment, one quartzite core, one bifacial granitic mano, one unifacial granitic mano, nine granitic mano fragments, numerous unidentified ground stone fragments, one battered implement, and one metate fragment. Ceramic types include brownware and buffware. Lithic materials include quartzite, metavolcanics, volcanic, obsidian, and wonderstone.

P-13-008586 / IMP-8009

The site was originally recorded by Underwood and Lilburn in 1998. The site consists of a low-density scatter of lithics, ceramics, and fire-affected rock in an area that measures 85 x 20 m. Artifacts include 15+ buffware ceramic sherds, 15+ pieces of debitage (quartzite, metavolcanic, basalt), two quartzite hammer stones, three granitic mano fragments, and two sandstone metate fragments.

P-13-008587 / IMP-8010 (subsumed by P-13-001266 / IMP-1266)

This site was originally recorded by Underwood and Lilburn in 1998 as a large, low-density scatter of lithics and ceramics with fire-affected rock. The site was re-located by Ramirez et al. in 2008 as an extensive

ceramic and lithic scatter, with most of the artifacts occurring in two concentrations and eroding out of sand dunes. Concentration 1 contains approximately 296 ceramic sherds, two obsidian flakes, and one metavolcanic flake. Concentration 2 contains about 69 ceramic sherds, seven metavolcanic flakes, four chert flakes, and two quartzite flakes. In total, there were approximately 600 artifacts recorded within the site. P-13-008587 has since been subsumed by P-13-001266.

P-13-008606 / IMP-8029

This site was originally recorded by Underwood and Lilburn in 1998. It consists of at least three buffware ceramic sherds, at least four flakes (quartzite and petrified wood), and two mano fragments. The site measures 20 x 8 m.

P-13-009941 / IMP-10004

This site was recorded by Hares et al. in 2008. The site is composed of four loci that contain a total of 410+ ceramic sherds, 23 flakes (quartzite, rhyolite, felsite, chert, obsidian, basalt), two cores, one mano, and one mano fragment. The site measures 40 x 110 m.

P-13-009942 / IMP-10005

This site was recorded by Covert et al. in 2008. It consists of seven Tizon brownware sherds, nine pieces of debitage (quartzite, felsite, chalcedony, chert), and three granitic mano fragments. The site measures 40 x 65 m.

P-13-014438

This isolate was originally recorded by Quach et al. in 2013. It consists of one sandstone milling slab fragment.

No historic addresses have been previously recorded within the survey area or record search radius. The SCIC record search confirmation is included in Appendix A.

NATIVE AMERICAN HERITAGE COMMISSION SACRED LANDS FILE RECORD SEARCH

The California NAHC was contacted on June 15, 2017 to conduct a record search of the Sacred Lands File for the survey area. On June 21, 2017, the NAHC responded that the record search of the Sacred Lands File had negative results; however, the area is sensitive for potential tribal cultural resources. The NAHC response included a list of 20 Native American individuals and organization to contact for further information regarding the survey area, including sacred sites, tribal cultural resources, and traditional cultural properties. Letters were sent to the 20 contacts on June 26, 2017. The NAHC was contacted again by ASM on June 27, 2017 to determine if any Cahuilla Native American individuals and organizations should also be contacted regarding the proposed Project, as the proposed Project is located near the southern boundary of the Cahuilla's ethnographic territory. On June 27, 2017, the NAHC provided an additional 17 Cahuilla Native American individuals and organizations to contact for further information. Letters were sent to the additional 17 contacts on June 28, 2017.

On June 29, 2017, Ray Teran, Resource Management of the Viejas Band of Kumeyaay Indians responded that the Project site has cultural significance or ties to Viejas, and request that a Kumeyaay Cultural Monitor be on site for ground-disturbing activities.

On July 17, 2017, William Vance, Tribal Vice Chairperson, Augustine Band of Cahuilla Indians responded that at this time they are unaware of specific cultural resources that may be affected by the proposed project,

and encourage contact of other Native American tribes within the vicinity of the Project. Monitoring during the pre-construction and construction phase of the project is recommended.

To date, no additional responses have been received. All correspondence pertaining to the NAHC is included in Appendix B.

4. SURVEY METHODS AND RESULTS

SURVEY METHODS

The archaeological survey was performed by ASM Associate Archaeologist Joel Lennen, ASM Field Technicians Joseph Arnold and Julian Armen, and Native American Monitor Gabe Kitchen of Redtail Monitoring and Research, Inc., from July 31 to August 2, 2017. The survey area was systematically surveyed in 15-m transect intervals running primarily north-south. The survey included all elements of the Survey area (see Figures 3 and 4). Any isolates, sites, and features were recorded. All site and isolate locations were recorded in Universal Transverse Mercator (UTM) coordinates using handheld GeoExplorer Trimble units with sub-meter accuracy. Resources were plotted on project maps using NAD 83 UTM coordinates (Confidential Appendix C). As applicable, site information was recorded on State of California DPR 523 series forms to State of California standards (Confidential Appendix D). Overview photographs were also taken of the survey area.

A site was defined as any concentration of three or more artifacts in a 25 m^2 area. Site boundaries were defined when over 50 m of open space separated artifact scatters. Isolated artifacts were defined as fewer than three artifacts in a 25 m^2 area. ASM assigned all cultural resources that meet the definition of archaeological sites with temporary site numbers.

ASM prepared California State Department of Parks and Recreation (DPR) 523 site forms for submittal to the SCIC for assignment of primary numbers and site trinomials to newly discovered sites. Recordation efforts included the plotting of each site on USGS 7.5-minute quad map, the definition of site boundaries and documentation of features and formed artifacts, detailed sketch maps to demonstrate the relationship of the sites' locations to topographic features and other landmarks, photographs of the site locations and specific features, and detailed information on environmental context, artifact content and density, cultural affiliation, and function. Site forms for all prehistoric cultural resources are confidential.

FIELD CONDITIONS

The field conditions throughout the survey included clear or partly cloudy skies, with relatively high humidity due to recent rains and temperatures reaching into the mid to upper 100s. As a result of the recent precipitation, some of the access roads and survey area were impacted by minor alluvial erosion. Grounds surface visibility was excellent, with most areas having approximately 80-90-percent visibility.

The survey area terrain is a mixture of flat agricultural fields that appear to have been out of use for a significant period, the previously developed solar farm substation area and access road, and the slightly undulating undeveloped desert terrain with low-lying dunes and intermittent drainages (Figures 5 and 6). The soil in the agricultural fields was a loamy sand, while the soil in the southeast portion of the survey area was sand. The presence of naturally occurring freshwater shell increased from west to east, especially outside of the agricultural fields. There was also a sparse scatter of modern rabbit (lagomorph) bones, as well as a few bones from unidentified species. No possible human remains were identified anywhere in the survey area.

At the time of the survey, none of the agricultural fields were in use. The fields appeared to have been left to fallow for several years. Previous aerials also indicate that the agricultural fields in the survey area have not been intensively utilized. The furrows were noted to be generally deflated and almost at ground level. In addition to the anthropogenic impacts noted above, fluvial and aeolian erosion have significantly affected most of the survey area, especially within the southeast portion of the survey area where there is no evidence of agricultural use.

Figure 5. Overview of northern survey area, showing the current substation and former agricultural fields, facing north.

Figure 6. Overview of the southern survey area showing undeveloped desert lands, facing south.

Along the eastern boundary of the survey area, coinciding with the highest concentration of previously recorded cultural resources, there is a road and a transmission line. Along these linear features is the heaviest concentration of vehicular traffic and modern refuse, except for small pockets surrounding the substation. The road and transmission line intersect with a moderate-sized drainage located along the southern boundary of the survey area, where there was an increase in the amount of vegetative debris and gravel.

SURVEY RESULTS

In total, 18 cultural resources have been previously recorded or were newly recoded within the survey area (Table 3). Seven cultural resources (six archaeological sites and one isolate) have been previously recorded within the survey area. However, two of the archaeological sites, IMP-1266 and IMP-8010, had been previously combined into IMP-1266.

Two of the sites, P-13-008586/IMP-8009 and P-13-009942/IMP-10005, were not re-located during the survey. The remaining archaeological sites and isolate were relocated within the survey area. Site P-13-008606/IMP-8029 was re-located approximately 15 m to the southeast of its previously recorded location.

Eight archaeological sites and four isolates were newly recorded within the survey area. The locations of the cultural resources are provided in confidential Appendix C – Confidential Maps and confidential Appendix D – DPR Forms.

P-13-001266 / IMP-1266 (Including subsumed P-13-008587 / IMP-8010)

Only a small portion of P-13-001266 / IMP-1266 intersects the survey area, including the previously subsumed resource P-13-008587 / IMP-8010. In the portion of the site that lies with the survey area, there were approximately 60 buffware body sherds, a small percentage of which show evidence of burning, one grayware body sherd, five wonderstone interior flakes, 10+ volcanic interior flakes, six quartzite interior flakes, three obsidian interior flakes, one petrified wood interior flake, one jasper primary flake, and five fire-affected rocks (FAR). The site has been impacted by vehicular traffic along Road 191, which cuts through the western boundary of the site.

P-13-008586 / IMP-8009

During the current survey, P-13-008586 / IMP-8009 was not re-located within the survey area. It is possible, in accordance with its recorded location at the base of a low-lying dune, that the site has since been covered by a slight shift in the dune caused by aeolian deposition.

P-13-008587 / IMP-8010

P-13-008587 / IMP-8010 has been previously subsumed as part of P-13-001266 / IMP-1266.

P-13-008606 / IMP-8029

The site was re-located 15 m to the south east of where it was originally recorded. Artifacts identified within the site boundaries include seven buffware body sherds, two petrified wood interior flakes, one grayware body sherd, and one quartzite interior flake.

P-13-009941 / IMP-10004

Only one volcanic interior flake was identified within the previously recorded boundaries of P-13-009941 / IMP-10004. It is possible the site has been heavily impacted from Road 191 and associated vehicular traffic, or was covered by aeolian and fluvial erosion.

P-13-009942 / IMP-10005

This site was not re-located during the current survey. It is possible the site has been heavily impacted from Road 191 and associated vehicular traffic, or was covered by aeolian and fluvial erosion.

P-13-014438

This isolated milling slab was re-located during the current survey. No changes were noted.

28540_JL_S_1

This site is located along the southern base of a low-lying dune. It is a small, dense lithic and ceramic scatter consisting of eight quartzite flakes, six porphyritic volcanic flakes, four chert flakes, one chalcedony flake, three buffware body sherds, two buffware rim sherds, and one grayware body sherd.

28540_JL_S_2

This site is located in a flat area that appears to have been heavily impacted by fluvial and aeolian erosion. It is a small lithic and ceramic scatter consisting of 12 grayware body sherds, 11 brownware body sherds, one grayware rim sherd, one brownware body sherd, one obsidian primary flake, and one granitic mano fragment.

28540_JL_S_3

This site is located in a flat area between two low-lying sand dunes. It is a moderately dense lithic and ceramic scatter consisting of 39 brownware body sherds, 24 grayware body sherds, five buffware body sherds, three brownware rim sherds, two chert primary flakes, one chalcedony interior flake, and one granitic mano fragment.

28540_JL_S_4

This site is located in a flat area near a small, conical-shaped dune. It is a moderately dense lithic and ceramic scatter consisting of 100+ brownware body sherds, 10+ grayware body sherds, 10+ buffware body sherds, 10+ rim sherds (grayware, brownware, and buffware), 10+ interior flakes (chalcedony, chert, quartzite, volcanic), and two granitic mano fragments.

28540_JL_S_5

This site is located in a dry, shallow drainage that is a short distance north of an east- west trending dune. It is a small lithic and ceramic scatter consisting of two grayware body sherds, one brownware body sherd, and one quartzite interior flake.

28540_JL_S_6

This site is located near the boundary of the agricultural fields. It has been impacted by fluvial erosion and vehicular traffic that runs parallel to the fence that serves as the eastern boundary for the agricultural fields. The site is a small lithic and ceramic scatter consisting of seven buffware sherds, two brownware sherds, two grayware sherds, eight chert flakes, three porphyritic volcanic flakes, two granitic flakes, and one chert core.

28540_JL_S-_7

This site is located in a shallow, intermittent drainage and consists of two buffware sherds and one sandstone mano.

28540_JL_S_8

This site is located on a slightly undulating surface and consists of two porphyritic volcanic flakes and two grayware body sherds.

28540_JL_I_3

This isolate is located on the southeast-facing slope of a low-lying dune and consists of two partially burned grayware sherds.

28540_JL_I_4

This isolate is located in a flat area and consists of one grayware sherd and one brownware sherd.

28540_JL_I_6_A

This isolate is located near the boundary between the natural desert terrain and agricultural fields and consists of two buffware sherds.

28540_JL_I_6_B

This isolate is located near the boundary between the natural desert terrain and agricultural fields and consists of one brownware sherd.

Table 3. Summary of the Cultural Resources within the Survey Area

Primary # (P-13-)	Trinomial (CA-IMP-)	Temp. Site #	Type	Description	Located
001266 (subsumed 008587)	1266 (subsumed 8010)	-	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	A large prehistoric site consisting of large ceramic and lithic scatter and multiple milling areas	Yes
008586	8009	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A large, low-density lithic and ceramic scatter with fire-affected rock	No
008606	8089	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A low density lithic and ceramic scatter with fire-affected rock	Yes
009941	10004	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	An extensive ceramic and lithic scatter composed of four loci	Yes
009942	10005	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	No
014438	-	-	AP16: Prehistoric Isolate	An isolated sandstone milling slab fragment.	Yes
-	-	JL_S_1	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes
-	-	JL_S_2	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes
-	-	JL_S_3	AP2: Lithic Scatter, AP3: Ceramic Scatter	A moderate-sized ceramic and lithic scatter	Yes
-	-	JL_S_4	AP2: Lithic Scatter, AP3: Ceramic Scatter	A moderate-sized ceramic and lithic scatter	Yes
-	-	JL_S_5	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes
-	-	JL_S_6	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes
-	-	JL_S_7	AP2: Lithic Scatter, AP3: Ceramic Scatter	Two ceramic sherds and one mano	Yes
-	-	JL_S_8	AP2: Lithic Scatter, AP3: Ceramic Scatter	Two flakes and two ceramic sherds	Yes
-	-	JL_I_3	AP16: Prehistoric Isolate	Two ceramic sherds	Yes
-	-	JL_I_4	AP16: Prehistoric Isolate	Two ceramic sherds	Yes
-	-	JL_I_6A	AP16: Prehistoric Isolate	Two ceramic sherds	Yes
-	-	JL_I_6B	AP16: Prehistoric Isolate	One ceramic sherd	Yes

5. REGULATORY FRAMEWORK

CALIFORNIA ENVIRONMENTAL QUALITY ACT AND THE CALIFORNIA REGISTER OF HISTORICAL RESOURCES

CEQA requires that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to historical resources. Historical resources are recognized as part of the environment under CEQA. The act defines historical resources as "any object, building, structure, site, area, or place that is historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (Division I, Public Resources Code, Section 5021.1[b]).

Lead agencies have a responsibility to evaluate historical resources against the CRHR criteria prior to making a finding as to a proposed project's impacts to historical resources. Mitigation of adverse impacts is required if the proposed project will cause substantial adverse change. Substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. While demolition and destruction are fairly obvious significant impacts, it is more difficult to assess when change, alteration, or relocation crosses the threshold of substantial adverse change. The CEQA Guidelines provide that a project that demolishes or alters those physical characteristics of an historical resource that convey its historical significance (i.e., its character-defining features) is considered to materially impair the resource's significance. The CRHR is used in the consideration of historical resources relative to significance for purposes of CEQA. The CRHR includes resources listed in, or formally determined eligible for listing in, the NRHP and some California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory, may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise.

Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) consisting of the following:

a) it is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or

b) it is associated with the lives of persons important to local, California, or national history; or

c) it embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or

d) it has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

IMPERIAL COUNTY

The Renewable Energy and Transmission Element of the County of Imperial General Plan (Element) (Imperial County Planning and Development Services Department 2015) provides guidance and approaches with respect to the future siting of renewable energy projects and electrical transmission lines in the County. The goals of the Element include: supporting the safe and orderly development of renewable energy while providing for the protection of environmental resources; encourage development of electrical transmission lines along routes which minimize potential environmental effects; develop overlay zones that will facilitate the development of renewable energy resources while preserving and protecting agricultural,

natural, and cultural resources. In addition, the Open space Element of the General Plan includes goals, objectives, and policies for the protection of cultural resources and scientific sites that emphasize identification, documentation, and protection of cultural resources.

The Mitigation, Monitoring and Reporting Program (MMRP) of the Renewable Energy and Transmission Element includes five mitigation measures relating to cultural resources:

- CUL-1a: Agency Coordination;
- CUL-1b: Cultural Resources Records Searches;
- CUL-1c: Cultural Resources Pedestrian Surveys;
- CUL-1d: Site Characterization, Siting and Design, and Construction;
- CUL-1e: Reclamation and Decommissioning; and
- CUL-3: Proper Treatment of Human Remains.

6. MANAGEMENT CONSIDERATIONS AND RECOMMENDATIONS

In total, 18 cultural resources have been previously or currently identified within the survey area (Table 4). Of these, 13 are archaeological sites, and one, P-13-001266/IMP-1266 has subsumed P-13-008587/IMP-8010. None of the archaeological sites within the survey area have been previously evaluated for the CRHR or for significance under CEQA.

Five isolates were also identified within the Survey area. As isolates they are ineligible to the CRHR and not significance under CEQA.

Imperial County is the lead agency for the Project. Avoidance through project design is always recommended first; however due to other constraints within the survey area, avoidance is not always possible. Therefore, if the cultural resources will be impacted by project construction or maintenance activities, formal evaluation for eligibility for the CRHR under CEQA Guidelines and the Imperial County Element MMRP CUL-1d, Site Characterization, Sitting and Design and Construction is needed for compliance under CEQA. While P-13-008586/IMP-8009 and P-13-009942/IMP-10005 were not relocated during the current survey, they may have been covered by shifting sand dunes, and a subsurface component of the site may be present. Therefore, avoidance or evaluation of all newly and previously recorded sites within the survey area is recommended. As the isolates are ineligible to the CRHR no further work is recommended.

For resources with archaeological deposits, evaluation typically includes a combination of surface mapping and collection, excavation, and special analyses that are designed to understand site formation and human habitation of that resource in a regional context.

In addition to the site evaluations discussed above, construction monitoring of all ground disturbance by a qualified archaeologist and a Native American monitor is required under mitigation measures CUL-1d and CUL-3 of the MMRP for the Final Programmatic Environmental Impact Report for the Imperial County Renewable Energy and Transmission Element Update, Imperial County, California. Construction monitoring by a qualified archaeologist of all ground disturbance is also recommended due to the presence of numerous prehistoric cultural resources within the survey area and 1-mi. record search radius.

Table 4. Recommendations for Cultural Resources within the Survey Area

Primary # (P-13-)	Trinomial (CA-IMP-)	Temp. Site #	Type	Description	Located	Evaluation	Recommendation
001266 /008587	1266 / 8010	-	AP2: Lithic Scatter, AP3: Ceramic Scatter, AP16: Milling/Lithic Work Area	A large prehistoric site consisting of large ceramic and lithic scatter and multiple milling areas	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
008009	8586	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A large, low-density lithic and ceramic scatter with fire-affected rock	No	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR

Primary # (P-13-)	Trinomial (CA-IMP-)	Temp. Site #	Type	Description	Located	Evaluation	Recommendation
008029	8606	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A low-density lithic and ceramic scatter with fire-affected rock	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
009941	10004	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	An extensive ceramic and lithic scatter composed of four loci	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
009942	10005	-	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	No	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
014438	-	-	AP16: Prehistoric Isolate	An isolated sandstone milling slab fragment	Yes	Not Eligible - isolate	No further work recommended
-	-	JL_S_1	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_2	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_3	AP2: Lithic Scatter, AP3: Ceramic Scatter	A moderate-sized ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_4	AP2: Lithic Scatter, AP3: Ceramic Scatter	A moderate-sized ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_5	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_6	AP2: Lithic Scatter, AP3: Ceramic Scatter	A small ceramic and lithic scatter	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_7	AP2: Lithic Scatter, AP3: Ceramic Scatter	Two ceramic sherds and one mano	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_S_8	AP2: Lithic Scatter, AP3: Ceramic Scatter	Two flakes and two ceramic sherds	Yes	Not evaluated	Avoidance or if impacts are expected an evaluation to the CRHR
-	-	JL_I_3	AP16: Prehistoric Isolate	Two ceramic sherds	Yes	Not Eligible - isolate	No further work recommended
-	-	JL_I_4	AP16: Prehistoric Isolate	Two ceramic sherds	Yes	Not Eligible - isolate	No further work recommended

Primary # (P-13-)	Trinomial (CA-IMP-)	Temp. Site #	Type	Description	Located	Evaluation	Recommendation
-	-	JL_I_6A	AP16: Prehistoric Isolate	Two ceramic sherds	Yes	Not Eligible - isolate	No further work recommended
-	-	JL_I_6B	AP16: Prehistoric Isolate	One ceramic sherd	Yes	Not Eligible - isolate	No further work recommended

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APPENDICES

APPENDIX A

SCIC Confirmation

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: ASM Affiliates, Inc.

Company Representative: Tony Quach

Date Processed: 7/22/2017

Project Identification: Titan Solar II LLC's Seville 4 Solar Project

Search Radius: 1 mile

Historical Resources: YES

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: YES

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: YES

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: YES

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	2354
RUSH:	no
Hours:	1
Spatial Features:	168
Address-Mapped Shapes:	no
Digital Database Records:	0
Quads:	4
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	759

This is not an invoice. Please pay from the monthly billing statement

APPENDIX B

NAHC Correspondence

June 15, 2017

California Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
Via fax: (916) 373-5471

RE: Cultural Resources Inventory for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California

Dear NAHC Governmental Program Analyst,

ASM Affiliates is currently conducting a cultural resource investigation for the Titan Solar II LLC's Seville 4 Solar Project located approximately 30 miles west of Brawley and 30 miles east of Julian along Highway 78, in Imperial County, California. I am writing to inquire if you have registered any cultural resources, traditional cultural properties, or areas of heritage sensitivity within this proposed project area or in the general vicinity.

The search should include the project area and a one-mile radius surrounding it. The project area is located on the 7.5-Minute USGS Borrego Mtn. SE, Harpers Well SE, Kane Springs NW, and Shell Reef USGS 7.5' Quadrangles within Sections 14, 15, 22, 23, 24, 25, 26, and 27 of Township 12 South, Range 9 East. Attached to this request are maps of the project area for your records and to put on file.

Our investigation will include consultation with local tribal entities in a manner that ensures complete confidentiality. To facilitate this dialogue, I would like to make a request for a listing of the appropriate individuals to contact for this project. You can reply to me at the ASM Carlsbad office, listed above or through any of the other means of contact listed below. Feel free to call, write, Fax, or e-mail if you have any questions.

Sincerely,

Tony T. Quach

Associate Archaeologist
ASM Affiliates Inc.,
2034 Corte del Nogal
Carlsbad, CA 92011
Office: (760) 804-5757 Fax: 760-804-5755
tquach@asmaffiliates.com

Attachments:
Form 1. NAHC Sacred Lands Request
Figure 1. The 1:24,000 scale location map of the project area.
Figure 2. The 1:62,500 scale location map of the project area.
Figure 3. Aerial map of project area

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project:	Titan Solar II LLC's Seville 4 Solar Project Imperial County, California
ASM Project Reference	Seville 4 Titan Solar
County:	Imperial County
USGS Quadrangle:	7.5 Minute USGS Quadrangle
Quad Name(s):	Borrego Mtn. SE, Harpers Well SE, Kane Springs NW, and Shell Reef

Township: 12S Range: 9E Section(s): 14, 15, 22, 23, 24, 25, 26, and 27

Company/Firm/Agency:	ASM Affiliates Inc.
Contact Person:	Tony Quach
Street Address:	2034 Corte del Nogal
City:	Carlsbad, CA 92011
Phone:	760-804-5757
Fax:	760-804-5755
Email:	tquach@asmaffiliates.com

Preliminary Project Description:

Titan Solar II LLC's Seville 4 Solar Project is proposing the development of a solar generation facility.

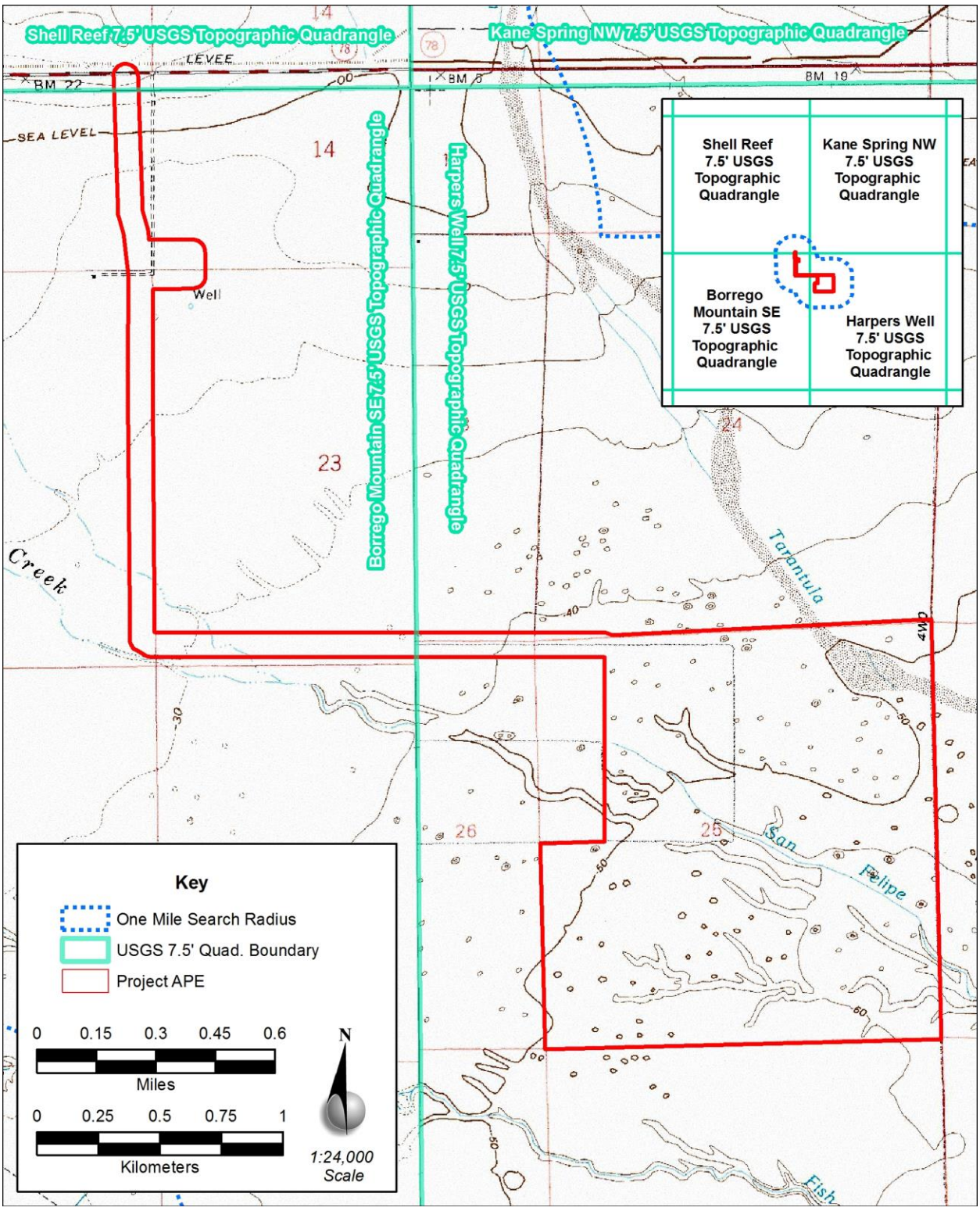

Figure 1. The 1:24,000 scale location map of the project area.

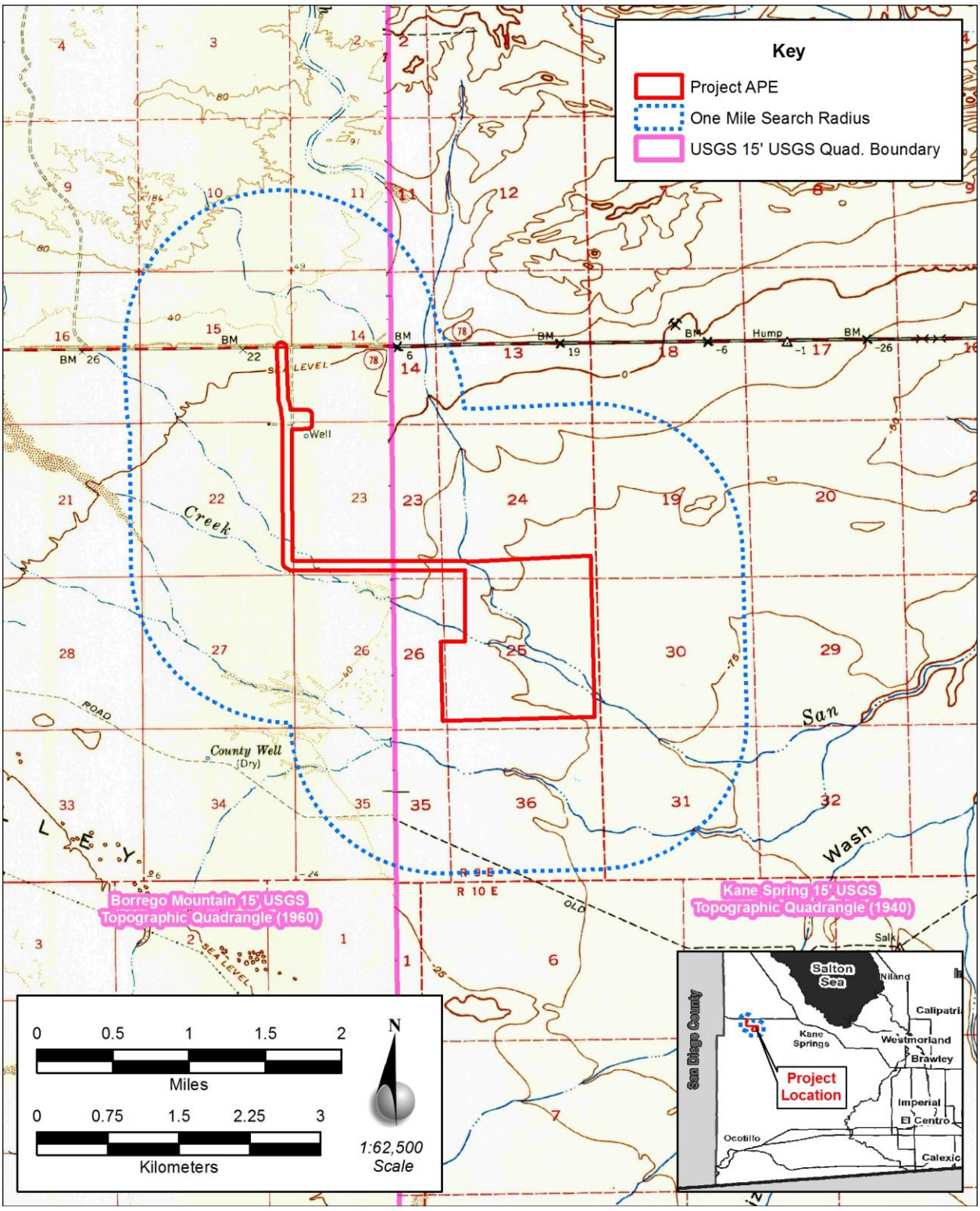

Figure 2. The 1:62,500 scale location map of the project area.

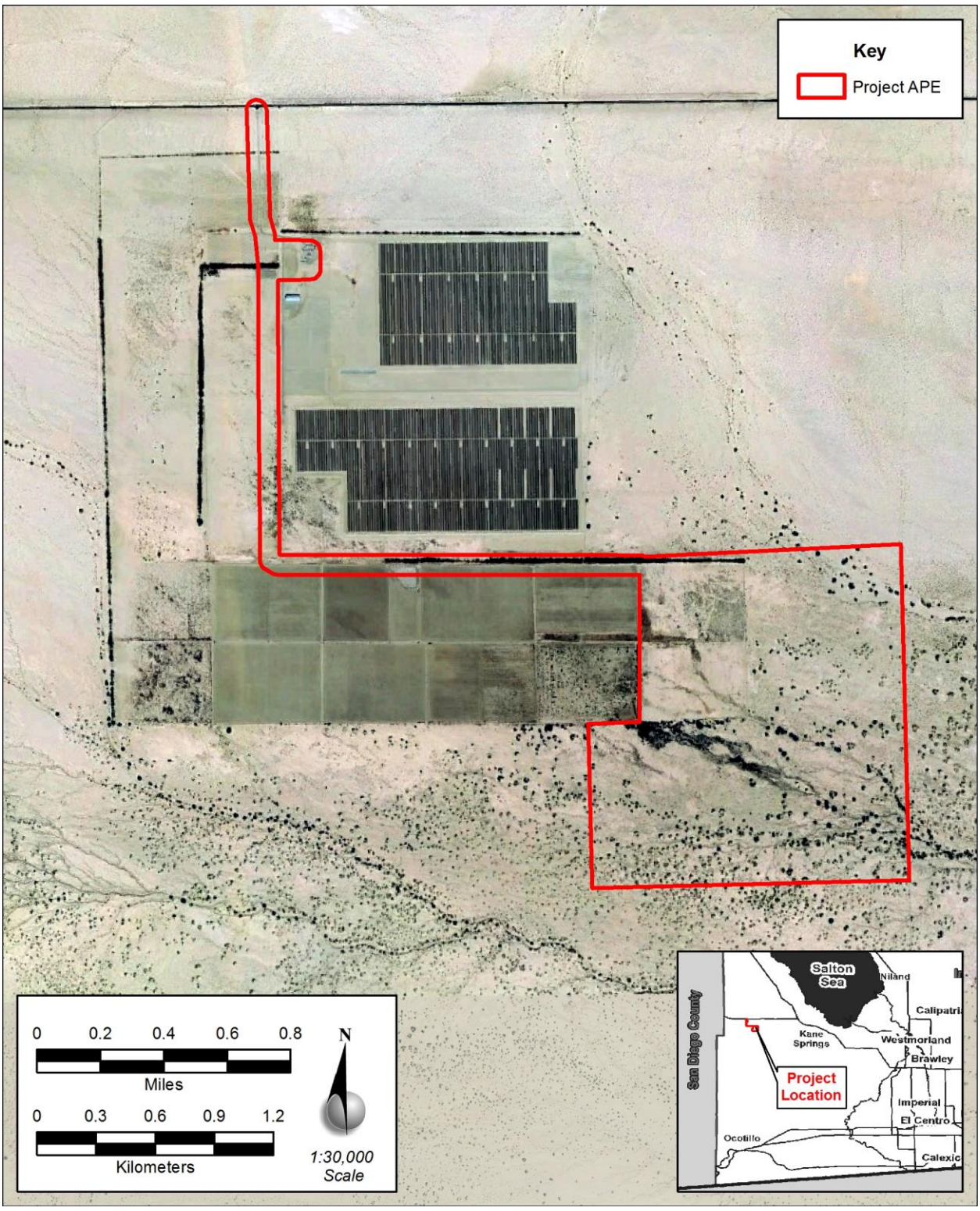

Figure 3. Aerial map of project area

NATIVE AMERICAN HERITAGE COMMISSION
Environmental and Cultural Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
(916) 373-3710

June 21, 2017

Tony Quach
ASM Affiliates, Inc.

Sent by E-mail: tquach@asmaffiliates.com

RE: Proposed Titan Solar II LLC's Seville 4 Solar Project, near the Community of Kane Springs; Borrego Mountain SE, Harper's Well SE, Kane Springs NW, and Shell Reef USGS Quadrangles, Imperial County, California

Dear Mr. Quach:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties. Please note that the intent of the reference codes below is to avoid or mitigate impacts to tribal cultural resources, as defined, for California Environmental Quality Act (CEQA) projects under AB-52.

As of July 1, 2015, Public Resources Code Sections 21080.3.1 and 21080.3.2 **require public agencies** to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose mitigating impacts to tribal cultural resources:

> **Within 14 days** of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section. (Public Resources Code Section 21080.3.1(d))

The law does not preclude agencies from initiating consultation with the tribes that are culturally and traditionally affiliated with their jurisdictions. The NAHC believes that in fact that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

In accordance with Public Resources Code Section 21080.3.1(d), formal notification must include a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation. The NAHC believes that agencies should also include with their notification letters information regarding any cultural resources assessment that has been completed on the APE, such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
   - If the probability is low, moderate, or high that cultural resources are located in the APE.
   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measurers.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. A search of the SFL was completed for the project with negative results however the area is sensitive for potential tribal cultural resources.

4. Any ethnographic studies conducted for any area including all or part of the potential APE; and

5. Any geotechnical reports regarding all or part of the potential APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS is not exhaustive, and a negative response to these searches does not preclude the existence of a cultural place. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the case that they do, having the information beforehand well help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance we are able to assure that our consultation list contains current information.

If you have any questions, please contact me at my email address: gayle.totton@nahc.ca.gov.

Sincerely,

Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

Native American Heritage Commission
Native American Contact List
Imperial County
6/21/2017

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
clloyd@barona-nsn.gov

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. Kumeyaay
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 Kumeyaay
Pine Valley, CA, 91962
Phone: (619)709-4207

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road Kumeyaay
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road Kumeyaay
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Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302 Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Titan Solar II LLC's Seville 4 Solar Project, Imperial County.

Native American Heritage Commission
Native American Contact List
Imperial County
6/21/2017

Manzanita Band of Kumeyaay Nation
Nick Elliott, Cultural Resources Coordinator
P. O. Box 1302 Kumeyaay
Boulevard, CA, 91905
Phone: (619) 766 - 4930
Fax: (619) 766-4957
nickmepa@yahoo.com

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
P.O. Box 365 Kumeyaay
Valley Center, CA, 92082
Phone: (760)749-3200
Fax: (760)749-3876
allenl@sanpasqualtribe.org

San Pasqual Band of Mission Indians
John Flores, Environmental Coordinator
P. O. Box 365 Kumeyaay
Valley Center, CA, 92082
Phone: (760) 749 - 3200
Fax: (760) 749-3876
johnf@sanpasqualtribe.org

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619)445-2613
Fax: (619)445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
1 Kwaaypaay Court Kumeyaay
El Cajon, CA, 92019
Phone: (619) 312 - 1935

Viejas Band of Kumeyaay Indians
Julie Hagen,
1 Viejas Grade Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
1 Viejas Grade Road Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Titan Solar II LLC's Seville 4 Solar Project, Imperial County.

Shelby Castells

From: Totton, Gayle@NAHC <Gayle.Totton@NAHC.CA.GOV>
Sent: Tuesday, June 27, 2017 8:14 AM
To: Shelby Castells
Subject: RE: Seville Solar contacts question
Attachments: TitanSolarSeville4-ASM-Quach 6-21-17.pdf

Attached the revised list.
Gayle

Gayle Totton, M.A., Ph.D.
Associate Governmental Program Analyst
Native American Heritage Commission
(916) 373-3710

_____

From: Shelby Castells [scastells@asmaffiliates.com]
Sent: Tuesday, June 27, 2017 7:55 AM
To: Totton, Gayle@NAHC
Subject: RE: Seville Solar contacts question

Hi Gayle,
Yes please, since the project is near a village site, I want to make sure I include everyone that may be interested. Thanks!
Shelby

Shelby Castells, M.A., RPA
Senior Archaeologist
ASM Affiliates • Carlsbad, CA
(760) 804-5757
E-mail: scastells@asmaffiliates.com
Website: www.asmaffiliates.com

-----Original Message-----
From: Totton, Gayle@NAHC [mailto:Gayle.Totton@NAHC.CA.GOV]
Sent: Tuesday, June 27, 2017 7:08 AM
To: Shelby Castells <scastells@asmaffiliates.com>
Subject: RE: Seville Solar contacts question

Hi Shelby,
I looked at this on the map again where we have all the maps submitted by tribes. Kane Springs is on the border of Cahuilla territory. If you want, I can revise the list to include the Cahuilla tribes for this project. Would that work for you?
Gayle

Gayle Totton, M.A., Ph.D.
Associate Governmental Program Analyst
Native American Heritage Commission
(916) 373-3710

_____
From: Shelby Castells [scastells@asmaffiliates.com]
Sent: Monday, June 26, 2017 3:50 PM
To: Totton, Gayle@NAHC
Cc: Tony Quach
Subject: Seville Solar contacts question

Hi Gayle,
We recently requested a SLF record search for the Seville Solar Project, in Imperial County, west of the Salton Sea. I've attached your response. Upon reviewing the results, are there any Cahuilla contacts that should be added for the project area?

Thanks,
Shelby

[cid:asmplainlogo638189722175261316803 1f6e]

Shelby Castells, M.A., RPA

Senior Archaeologist

ASM Affiliates • Carlsbad, CA

(760) 804-5757
scastells@asmaffiliates.com<mailto:scastells@asmaffiliates.com>
www.asmaffiliates.com<http://www.asmaffiliates.com>

Native American Heritage Commission
Native American Contact List
Imperial County
6/27/2017

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264 — Luiseno
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road — Kumeyaay
Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
clloyd@barona-nsn.gov

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1 — Kumeyaay
Campo, CA, 91906
Phone: (619) 478 - 9046
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Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road — Kumeyaay
Alpine, CA, 91901
Phone: (619) 445 - 6315
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
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Phone: (619) 445 - 6315
Fax: (619) 445-9126

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
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Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507 — Kumeyaay
Santa Ysabel, CA, 92070
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cjlinton73@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Titan Solar II LLC's Seville 4 Solar Project, Imperial County.

Native American Heritage Commission
Native American Contact List
Imperial County
6/27/2017

Inaja Band of Mission Indians
Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. Kumeyaay
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612 Kumeyaay
Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas,
P.O. Box 775 Kumeyaay
Pine Valley, CA, 91962
Phone: (619)709-4207

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road Kumeyaay
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LP13boots@aol.com

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
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Los Coyotes Band of Mission Indians
John Perada, Environmental Director
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Phone: (760) 782 - 0712
Fax: (760) 782-2730

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairperson
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Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
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Manzanita Band of Kumeyaay Nation
Nick Elliott, Cultural Resources Coordinator
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Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O Box 270 Kumeyaay
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

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Mesa Grande Band of Mission Indians
Mario Morales, Cultural Resources Representative
PMB 366 35008 Pala Temecula Rd.
Pala, CA, 92059
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Kumeyaay

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
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Banning, CA, 92220
Phone: (951) 849 - 8807
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dtorres@morongo-nsn.gov
Cahuilla
Serrano

Morongo Band of Mission Indians
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Fax: (951) 922-8146
Cahuilla
Serrano

Ramona Band of Cahuilla Mission Indians
John Gomez, Environmental Coordinator
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Cahuilla

Ramona Band of Cahuilla Mission Indians
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Cahuilla

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
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Valley Center, CA, 92082
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Kumeyaay

San Pasqual Band of Mission Indians
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Santa Rosa Band of Mission Indians
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Anza, CA, 92539
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Fax: (951) 659-2228
Cahuilla

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
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Phone: (951) 663 - 5279
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jontiveros@soboba-nsn.gov
Cahuilla
Luiseno

Soboba Band of Luiseno Indians
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San Jacinto, CA, 92583
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Fax: (951)654-4198
carrieg@soboba-nsn.gov
Cahuilla
Luiseno

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Native American Contact List
Imperial County
6/27/2017

Soboba Band of Luiseno Indians
Rosemary Morillo, Chairperson
P. O. Box 487 — Cahuilla
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Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court — Kumeyaay
El Cajon, CA, 92019
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Fax: (619)445-1927
ssilva@sycuan-nsn.gov

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resources Manager
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El Cajon, CA, 92019
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Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
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Fax: (760) 397-8146
mmirelez@tmdci.org

Viejas Band of Kumeyaay Indians
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Alpine, CA, 91901
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jhagen@viejas-nsn.gov

Viejas Band of Kumeyaay Indians
Robert Welch, Chairperson
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Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337
jhagen@viejas-nsn.gov

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architectural history
historical architecture

June 28, 2017

Los Coyotes Band of Mission Indians
Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, CA 92086-0189

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Chapparosa,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

ASM has completed a records search at the South Coastal Information Center for the project area. A records search of the Sacred Lands File with the California Native American Heritage Commission had negative results however the area is sensitive for potential tribal cultural resources.

We are contacting you to find out if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Tribal Cultural Resources, Traditional Cultural Properties, Sacred Sites, resource collecting areas, or any other areas of concern of which you wish us to be aware. We understand the need for confidentiality in these matters.

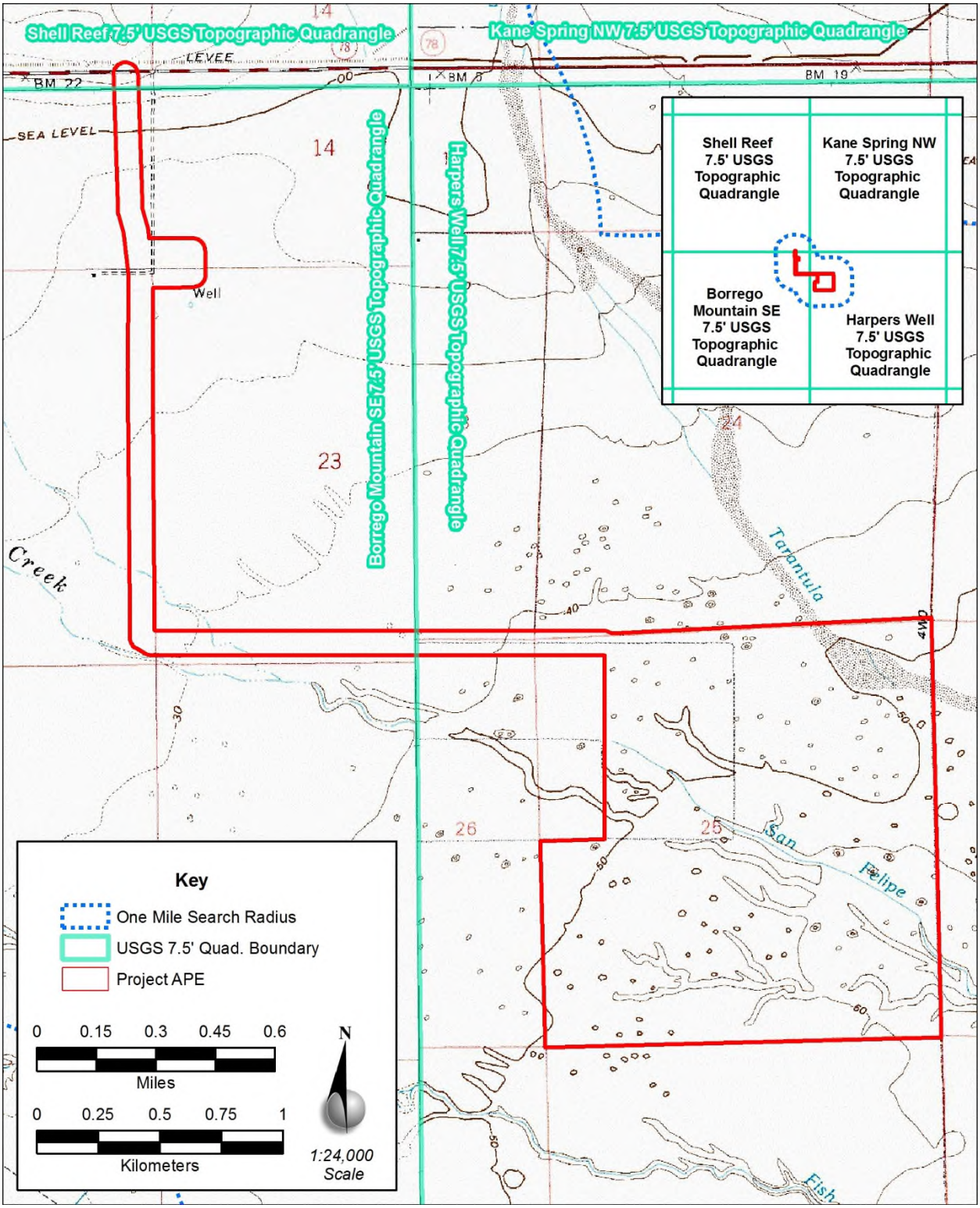
If you have any questions or concerns regarding the proposed Project, we will contact you about the best way to include consideration of those concerns while maintaining confidentiality. You can contact ASM at the address and telephone number for our Carlsbad office, listed below, or myself at the e-mail address below. We appreciate any input you may have on this Project, and understand that consultation is a private and ongoing process. Again, any information you provide us will remain confidential.

Sincerely,

Shelby G. Castells

Shelby Gunderman Castells, M.A., RPA
scastells@asmaffiliates.com
Senior Archaeologist

Figure 1. Project location map at 1:24,000 scale.



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June 26, 2017

Manzanita Band of the Kumeyaay Nation
Nick Elliott, Cultural Resources Coordinator
P.O. Box 1302
Boulevard, CA 91905

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

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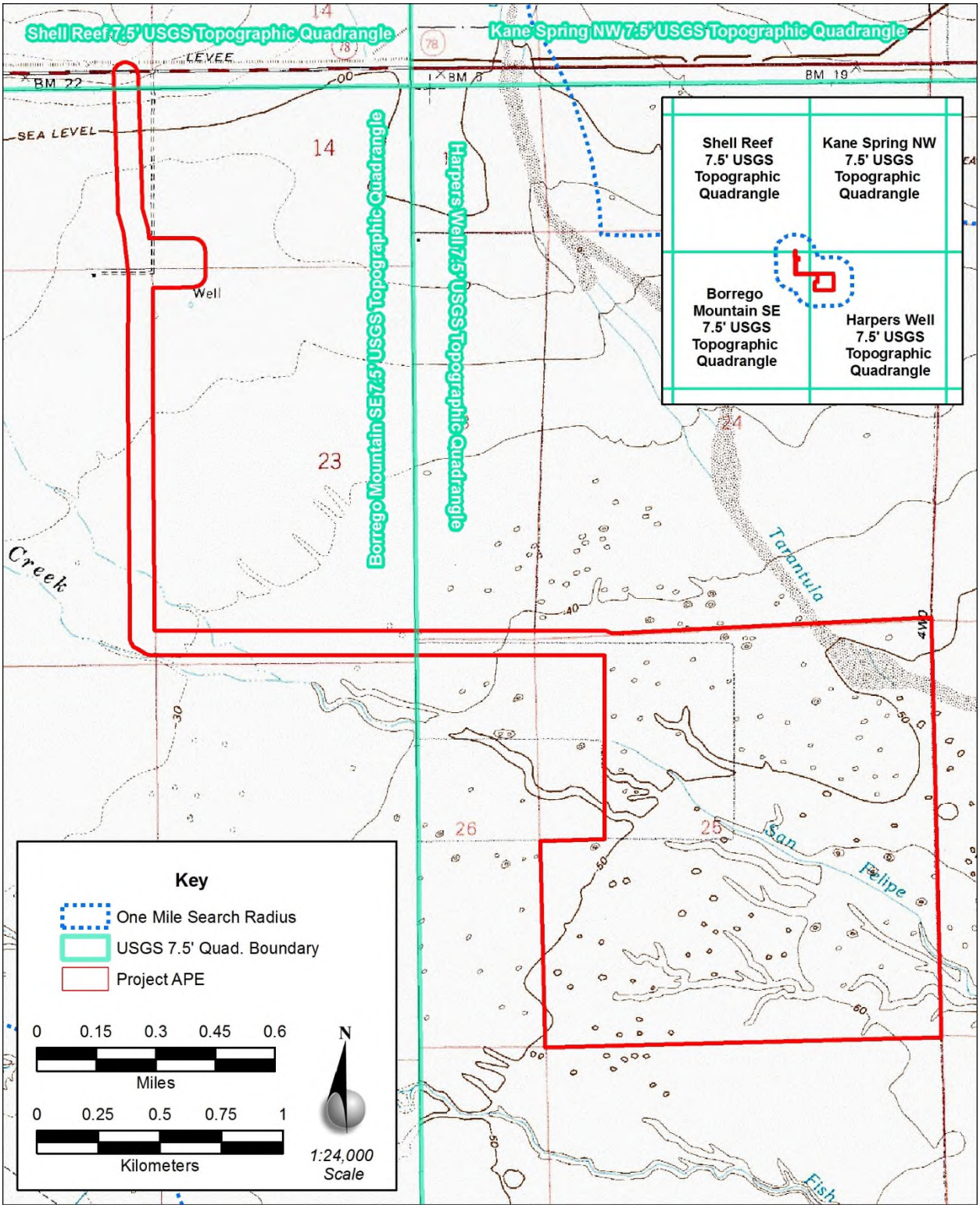

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June 28, 2017

Santa Rosa Band of Mission Indians
Steven Estrada, Chairperson
P.O. Box 391820
Anza, CA 92539

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Estrada,

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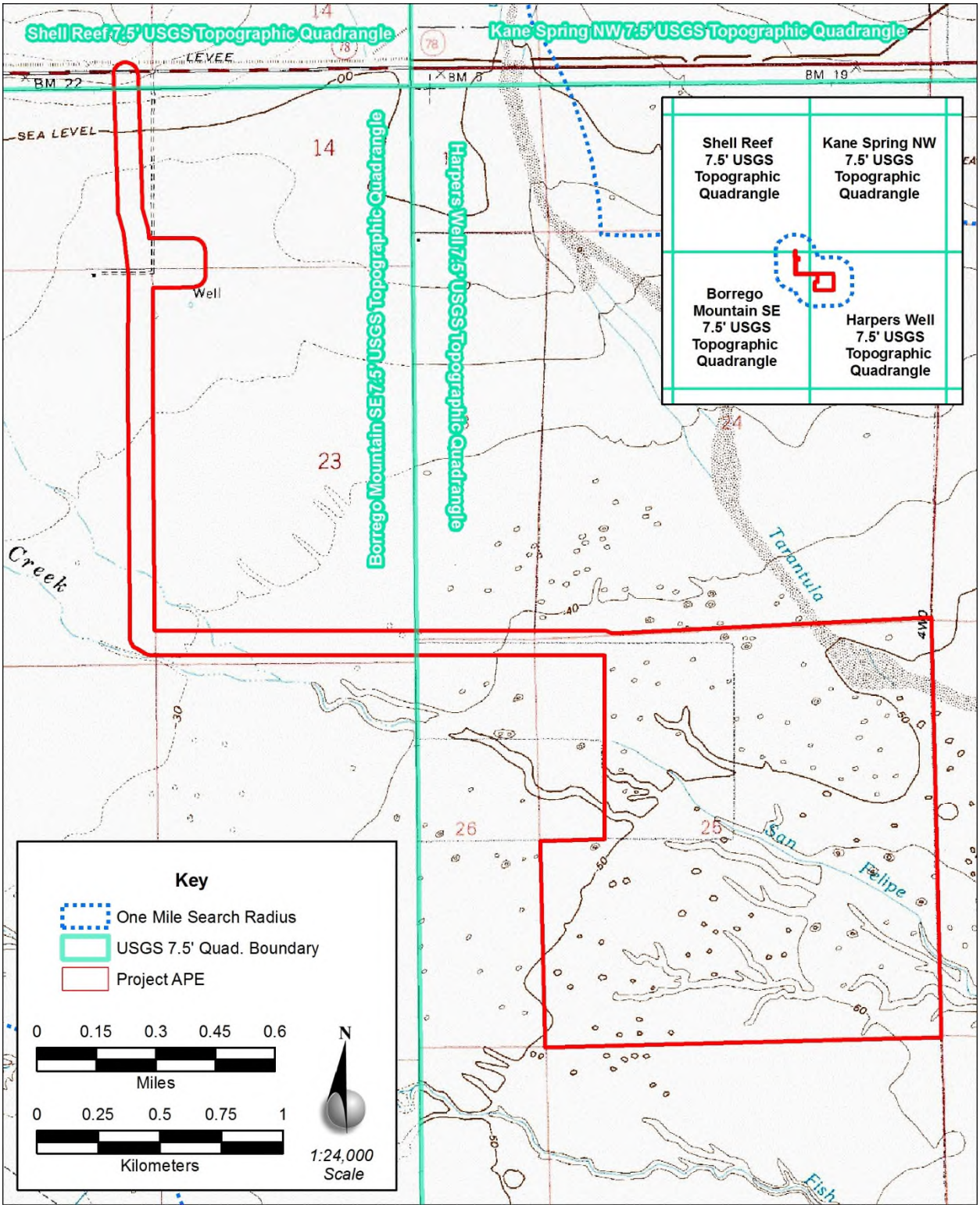

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June 26, 2017

San Pasqual Band of Indians
John Flores, Environmental Coordinator
P.O. Box 365
Valley Center, CA 92082

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Flores,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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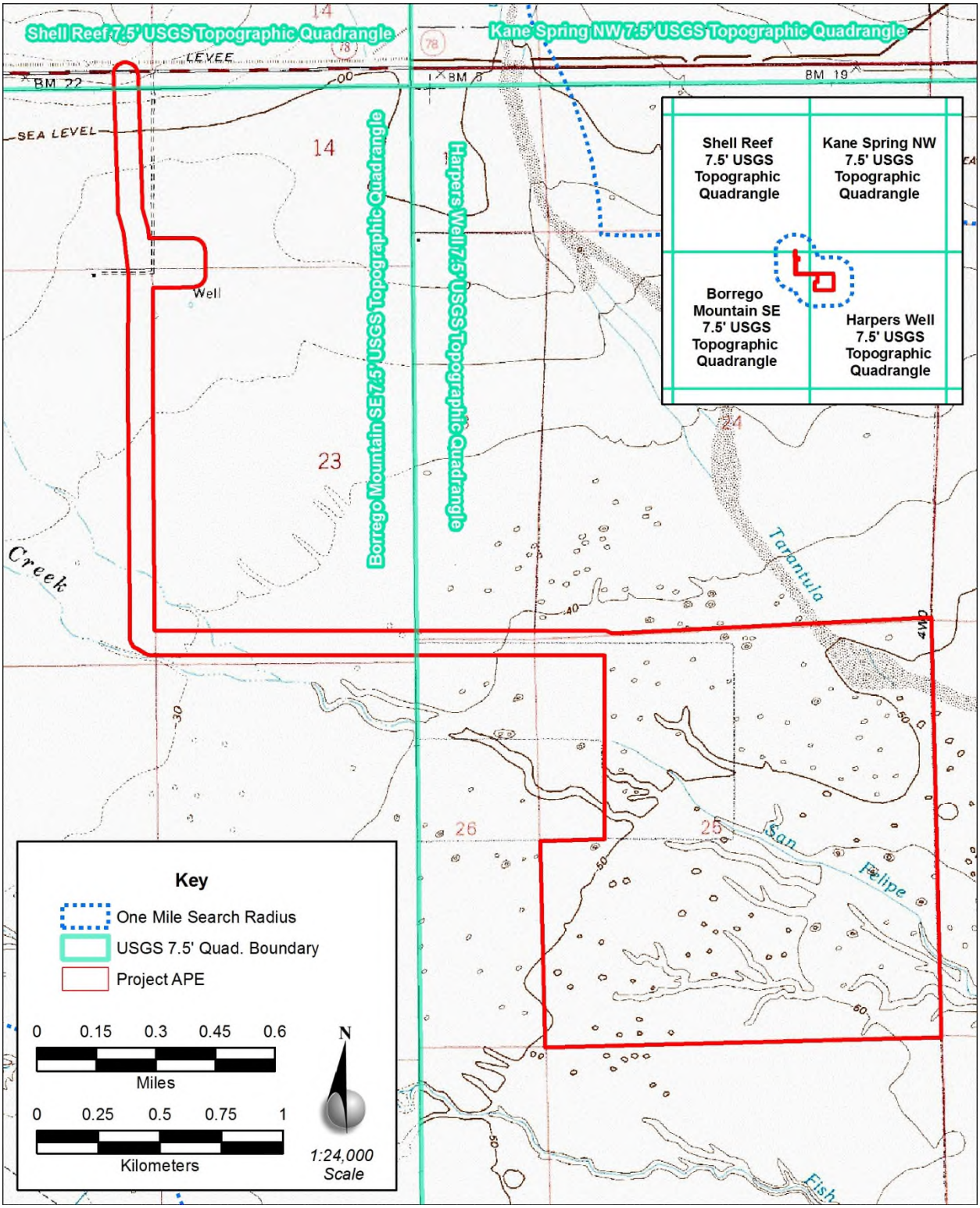

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June 28, 2017

Soboba Band of Mission Indians
Carrie Garcia, Cultural Resources Manager
P.O. Box 487
San Jacinto, CA 92581

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Garcia,

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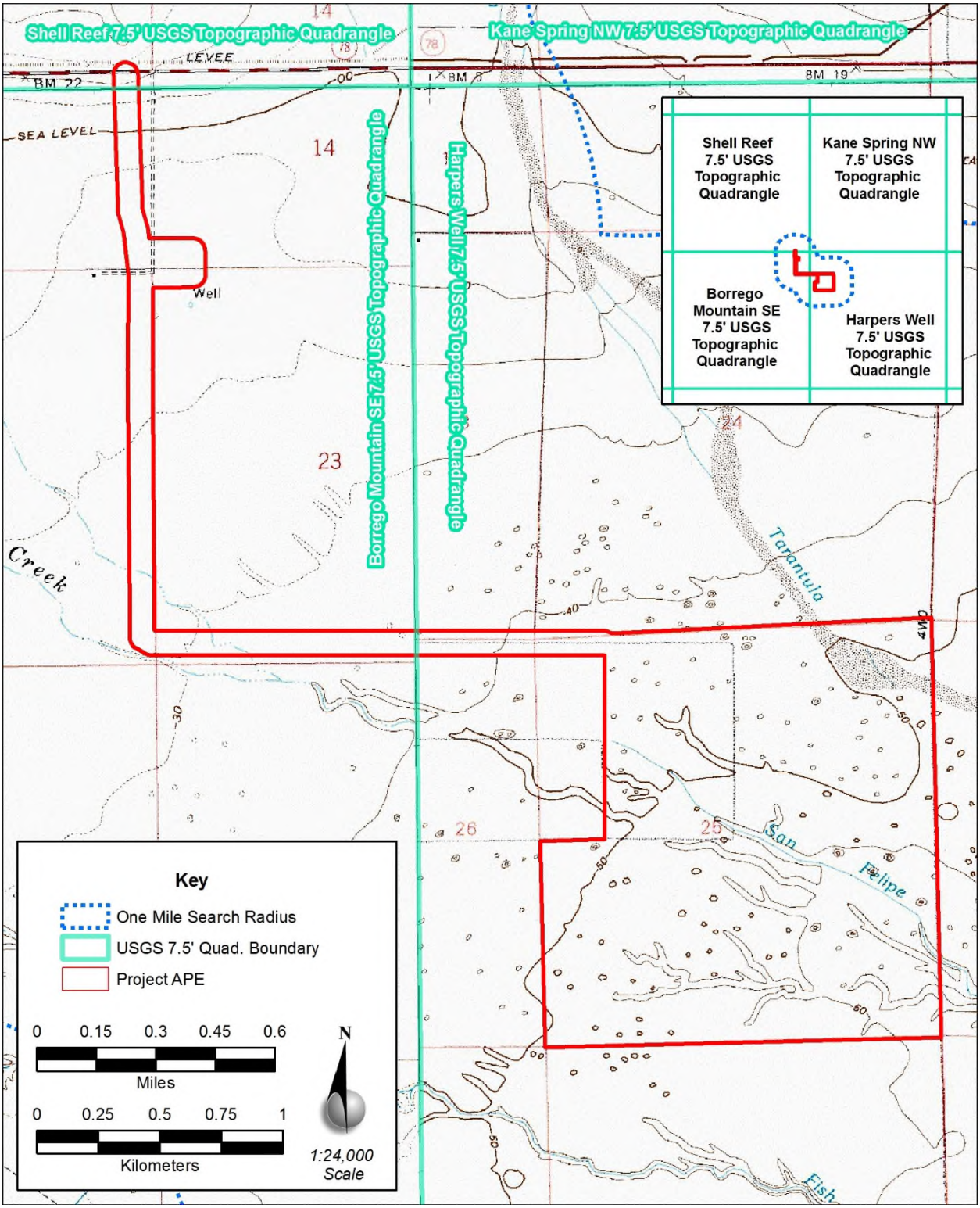

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June 26, 2017

Ewiiaapaayp Tribal Office
Michael Garcia, Vice Chairperson
4054 Willows Road
Alpine, CA 91901

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Garcia,

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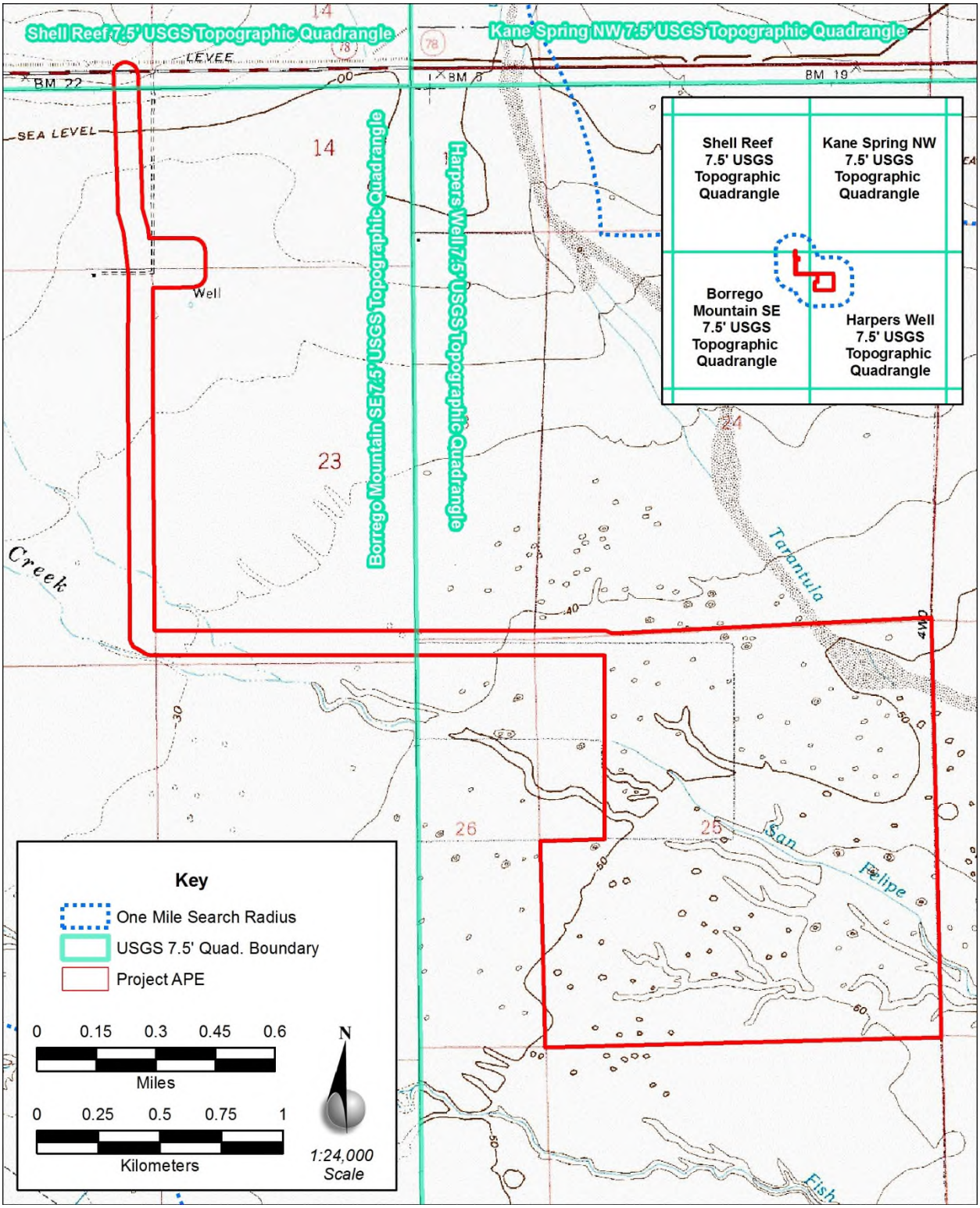

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June 28, 2017

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive
Palm Springs, CA 92264

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Garcia-Plotkin,

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Sincerely,

Shelby G. Castells

Shelby Gunderman Castells, M.A., RPA
scastells@asmaffiliates.com
Senior Archaeologist

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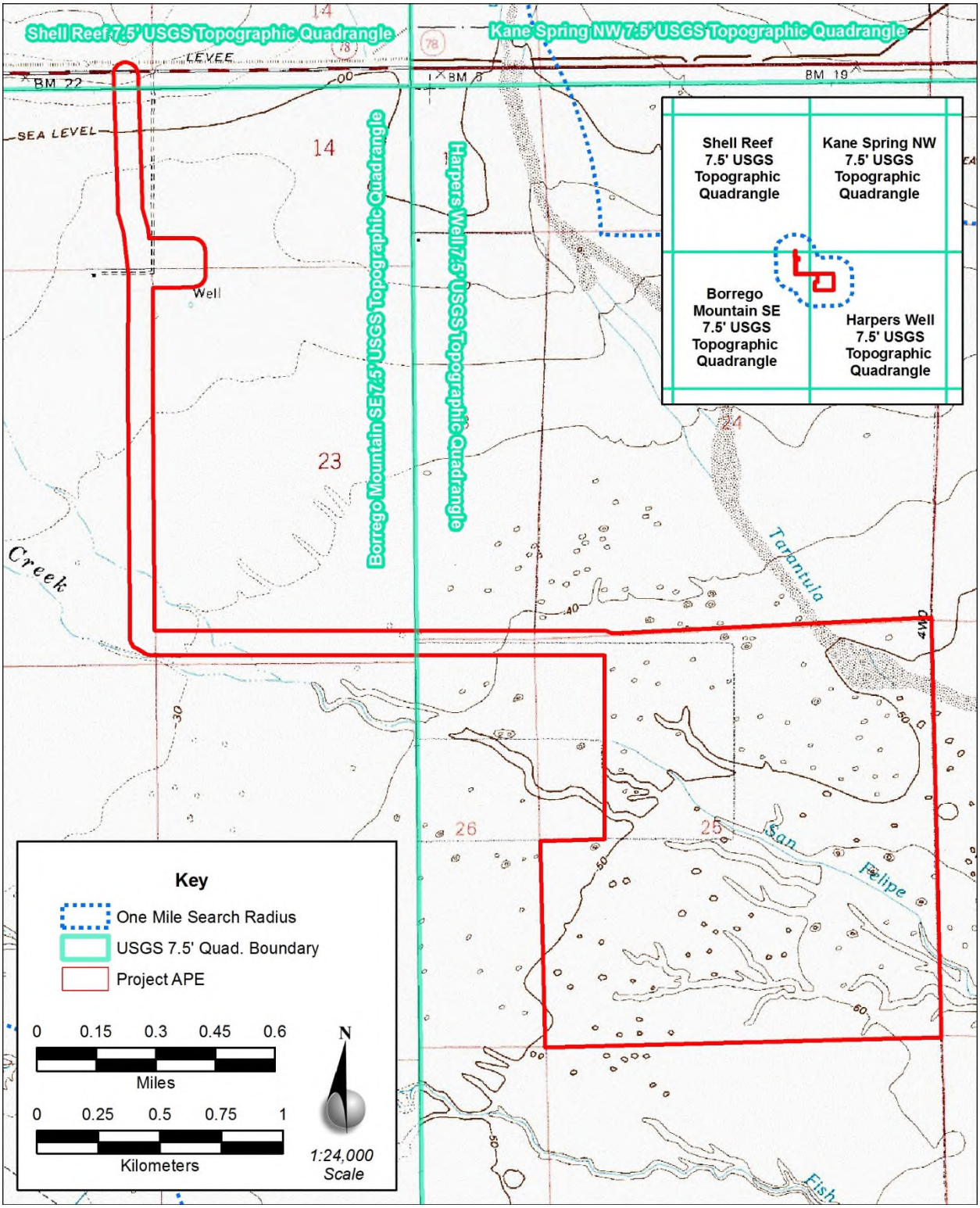

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June 26, 2017

Campo Band of Mission Indians
Ralph Goff, Chairperson
36190 Church Road, Suite 1
Campo, CA 91906

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Goff,

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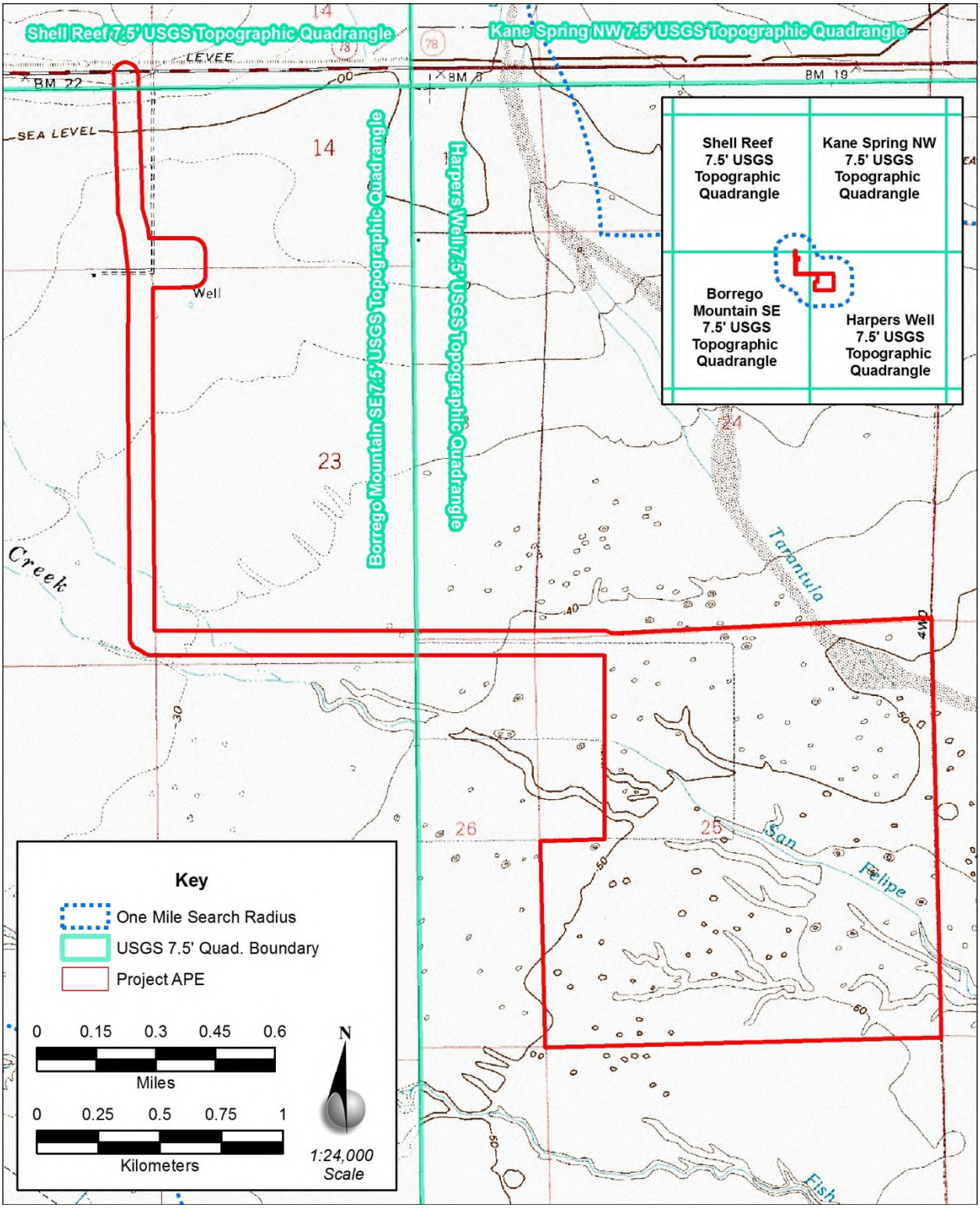

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June 28, 2017

Ramona Band of Cahuilla Mission Indians
John Gomez, Environmental Coordinator
P.O. Box 391670
Anza, CA 92539

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Gomez,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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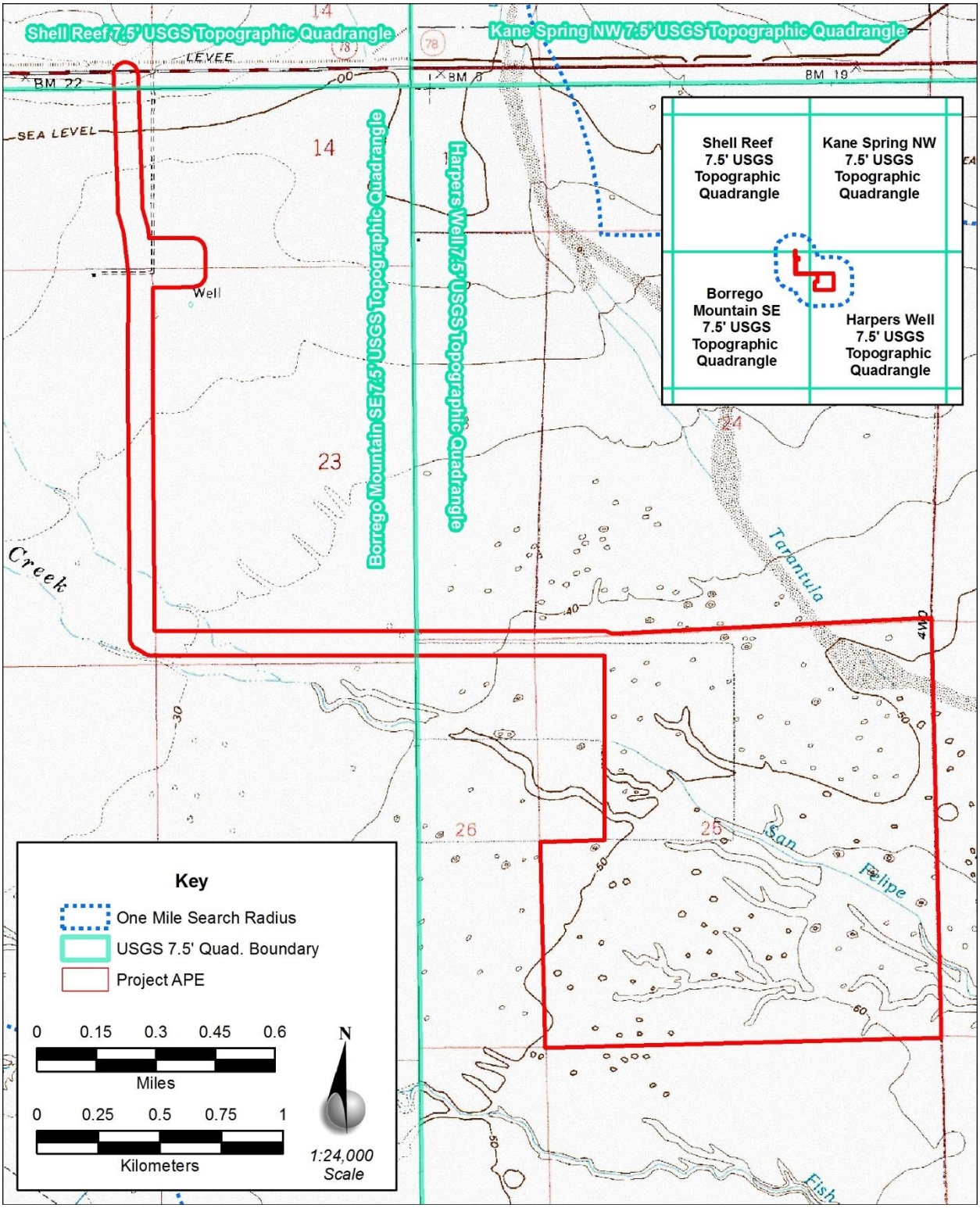

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June 28, 2017

Agua Caliente Band of Cahuilla
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, CA 92264

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Grubbe,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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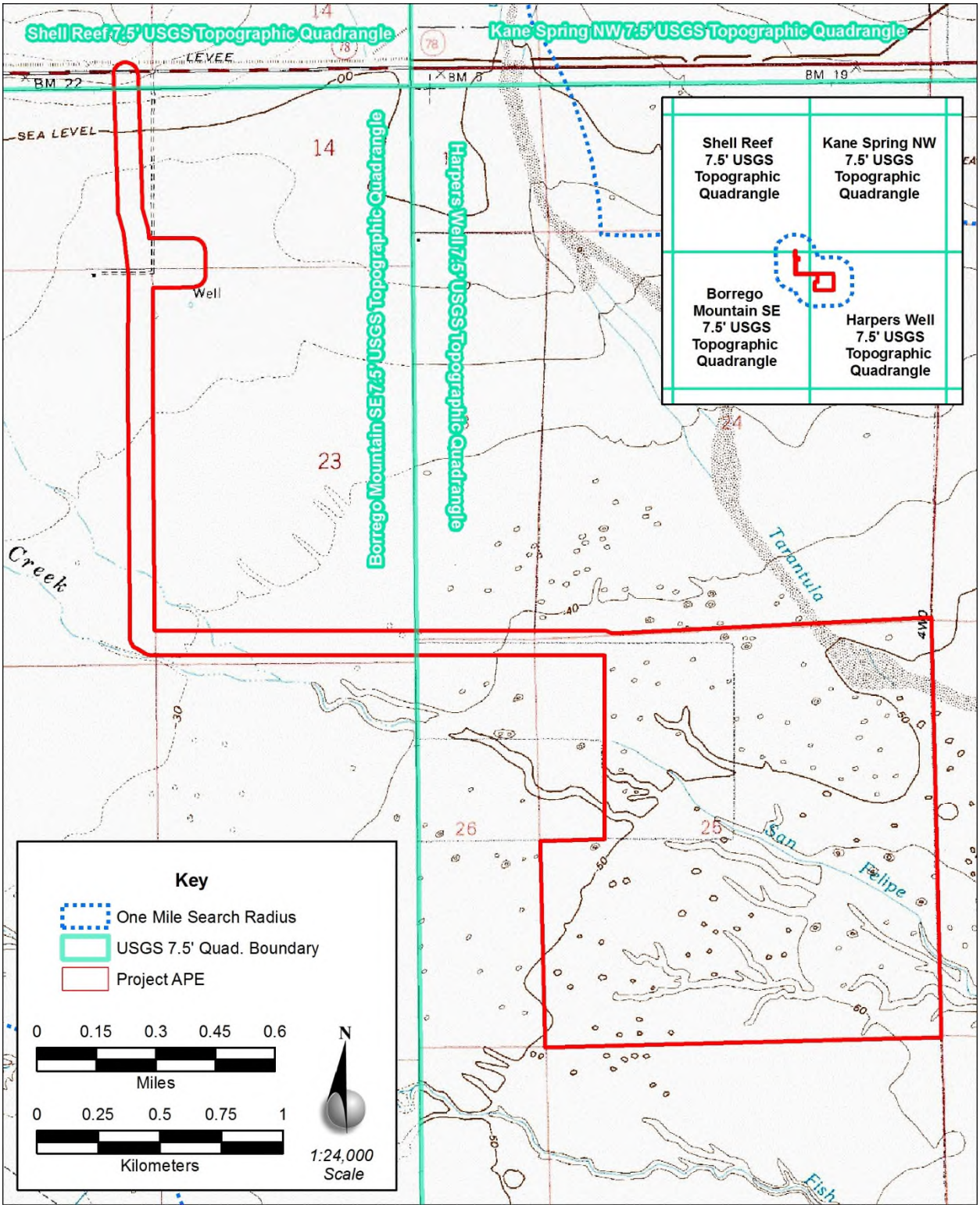

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June 26, 2017

Viejas Band of Kumeyaay Indians
Julie Hagen
1 Viejas Grade Road
Alpine, CA 91901

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Hagen,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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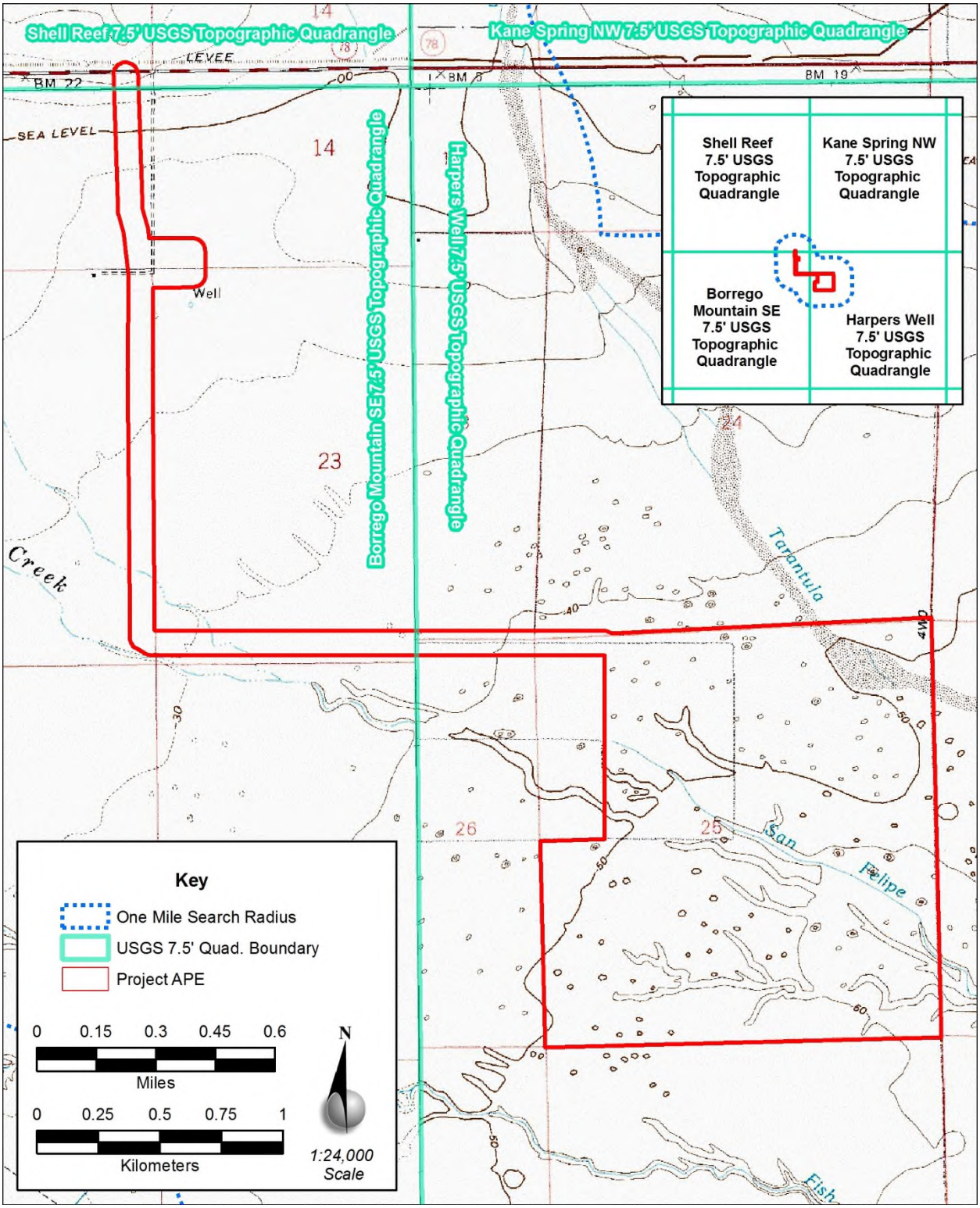

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June 28, 2017

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, CA 92539

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Hamilton,

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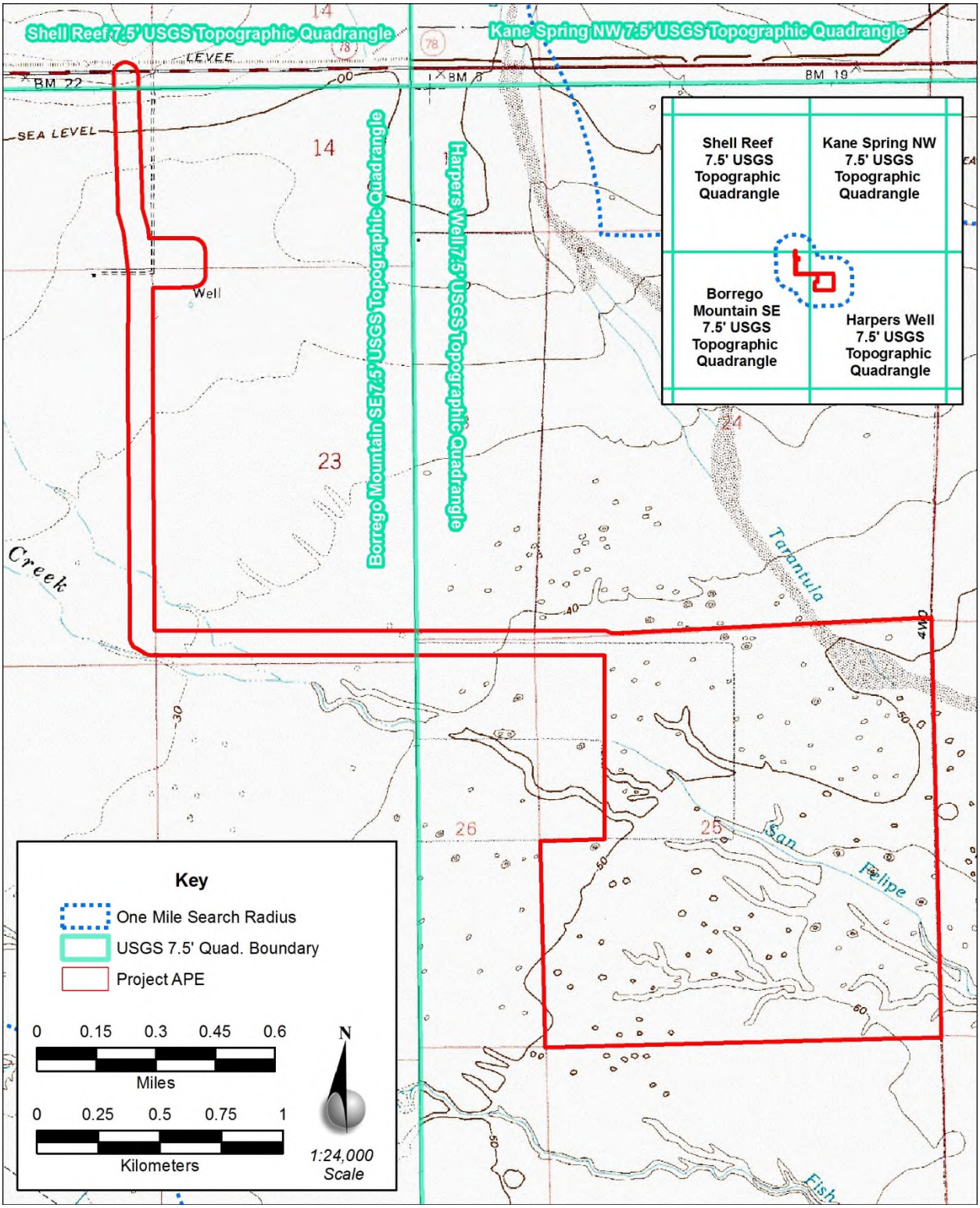

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June 26, 2017

Sycuan Band of the Kumeyaay Nation
Lisa Haws, Cultural Resource Manger
1 Kwaaypaay Court
El Cajon, CA 92019

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Haws,

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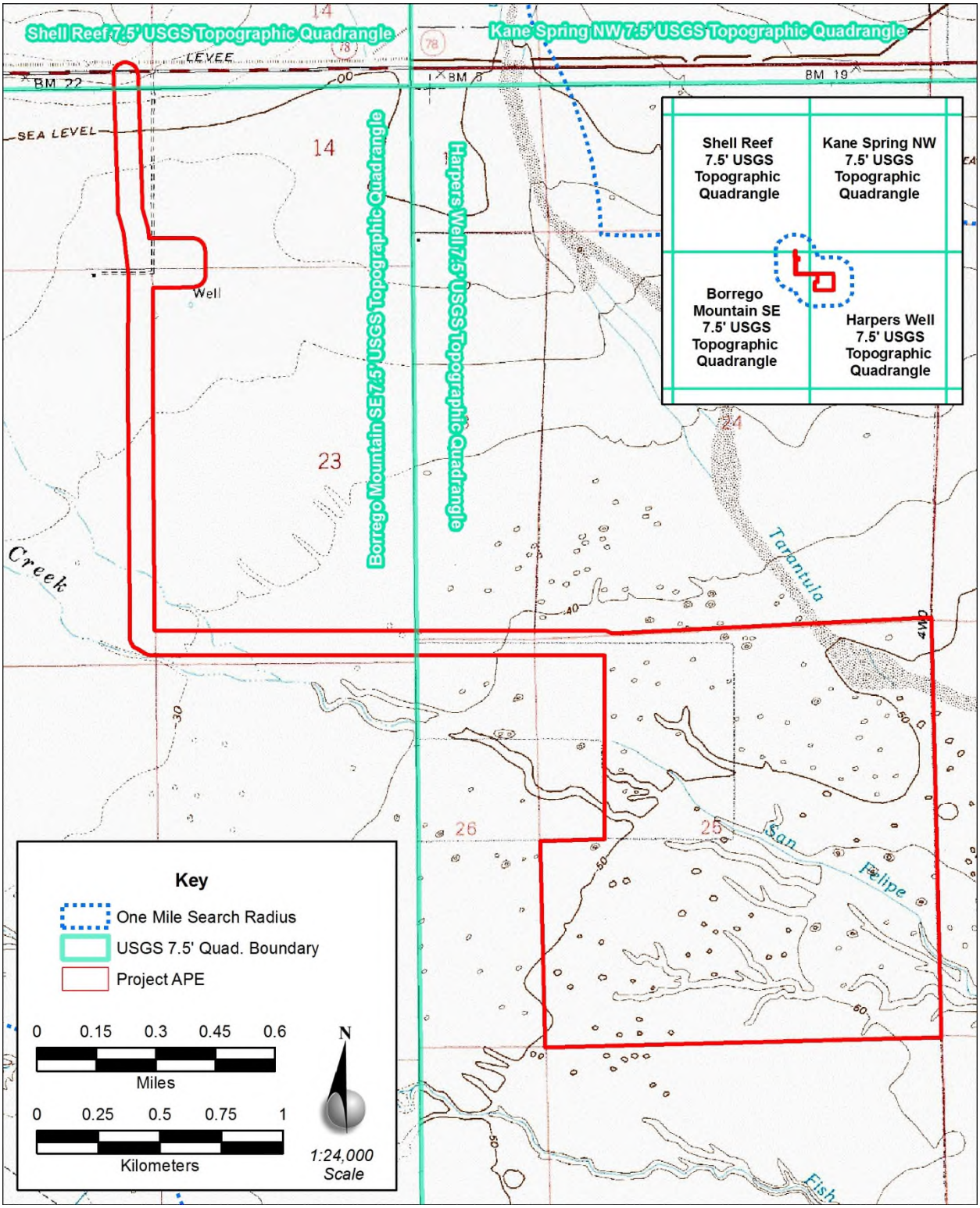

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June 26, 2017

San Pasqual Band of Mission Indians
Allen E. Lawson, Chairperson
PO Box 365
Valley Center, CA 92082

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Lawson,

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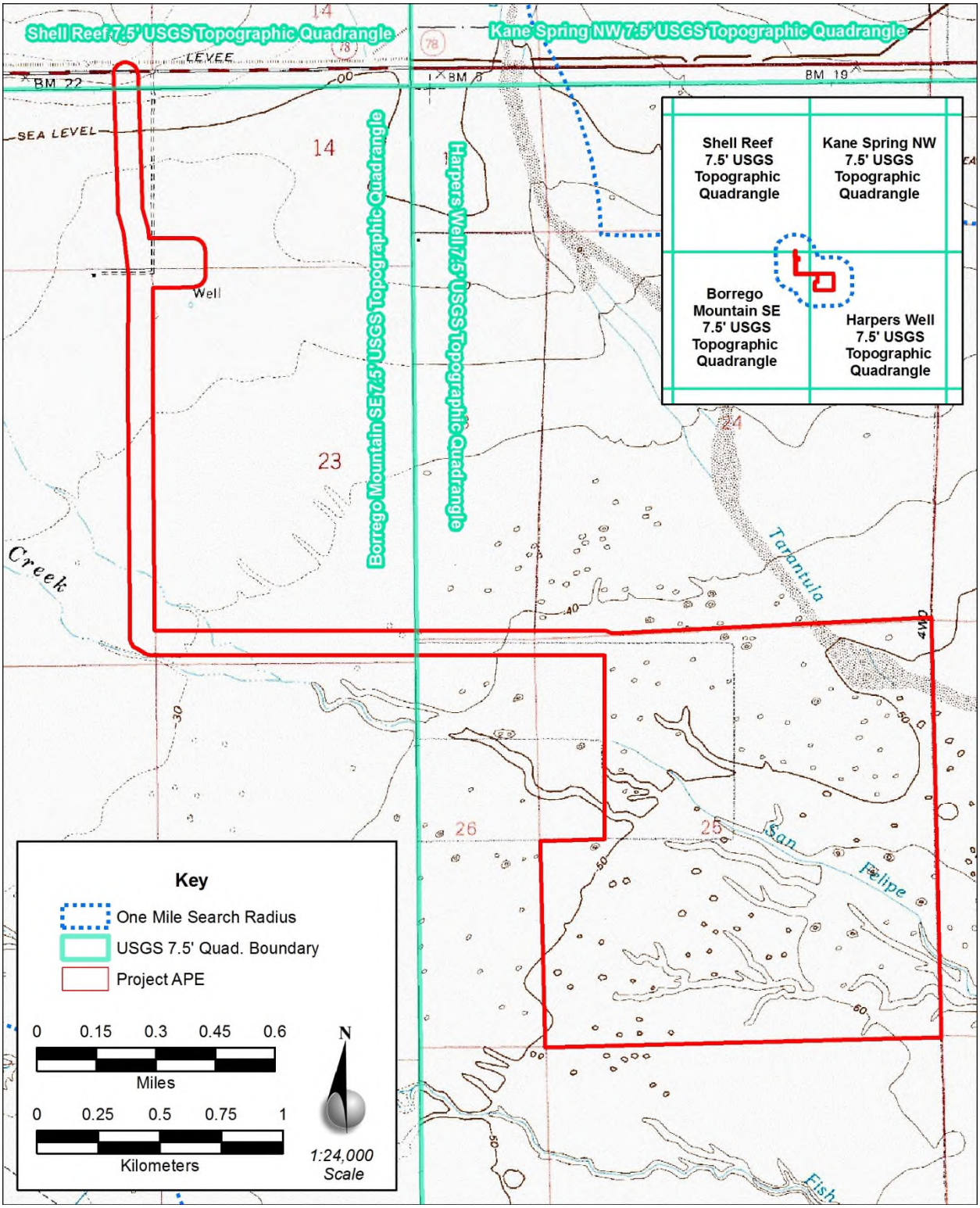

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June 26, 2017

Iipay Nation of Santa Ysabel
Clint Linton, Director of Cultural Resources
P.O. Box 507
Santa Ysabel, CA 92070

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Linton,

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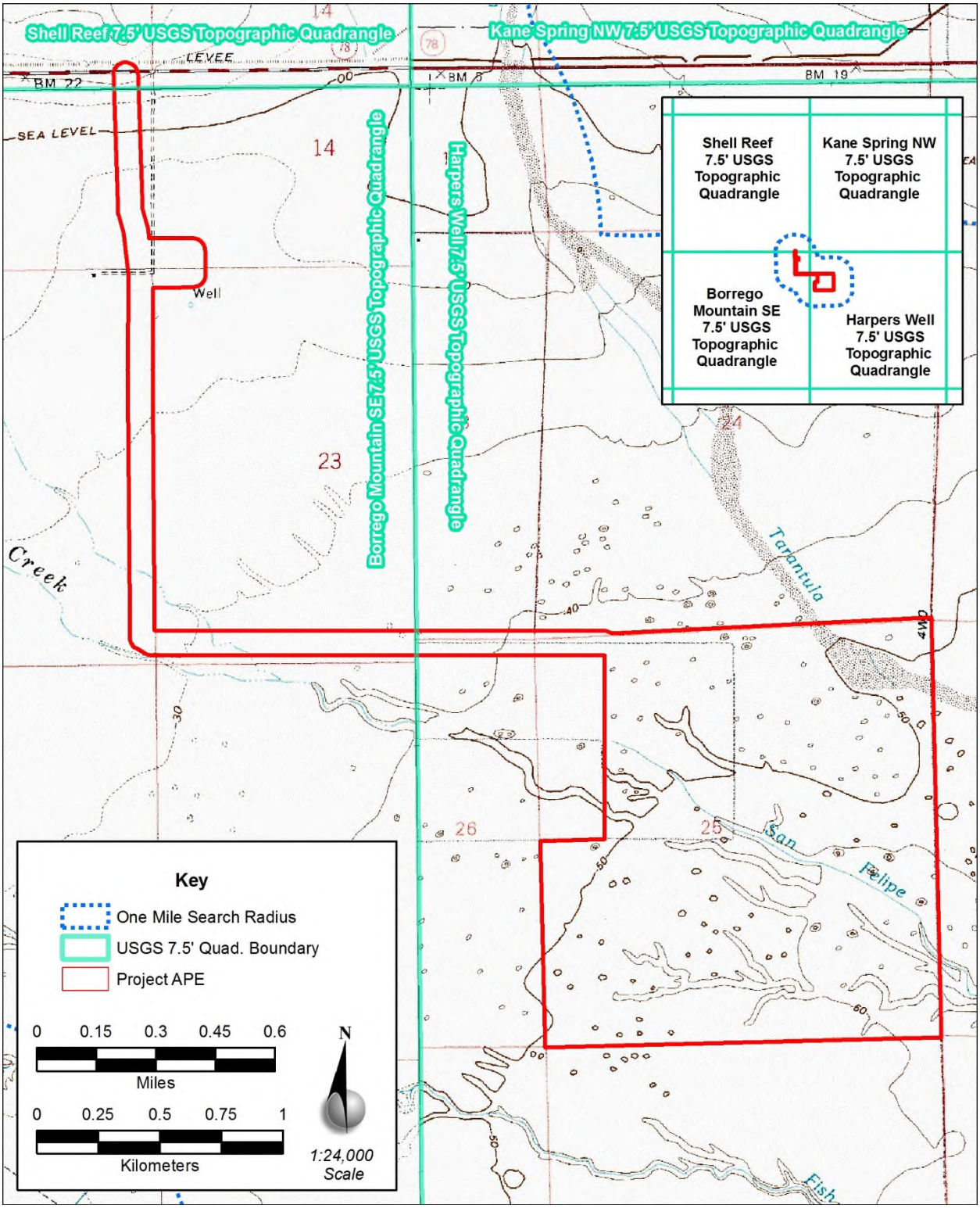

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June 26, 2017

Kwaaymii Laguna Band of Mission Indians
Carmen Lucas
PO Box 775
Pine Valley, CA 91962

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Lucas,

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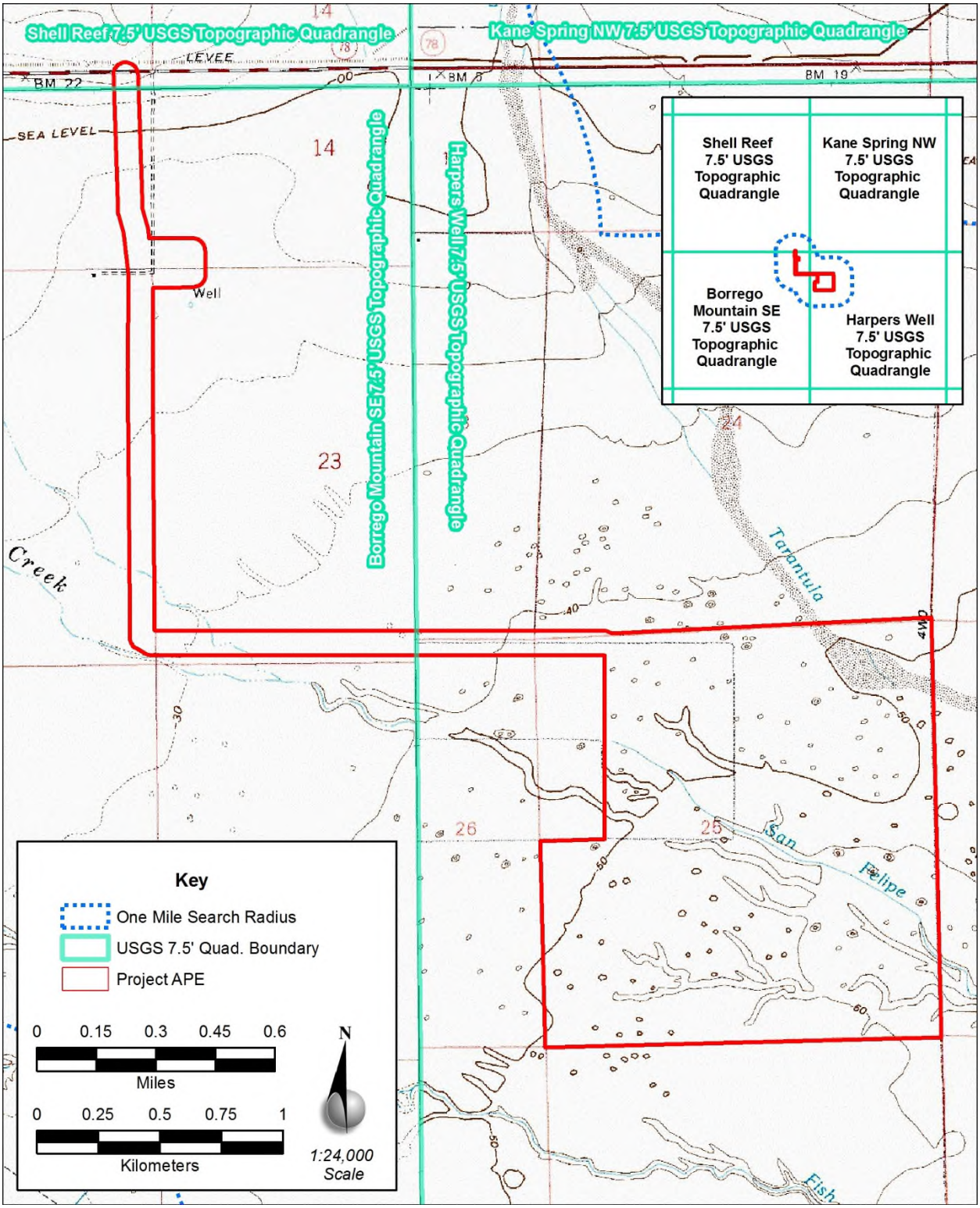

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June 28, 2017

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road
Banning, CA 92220

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

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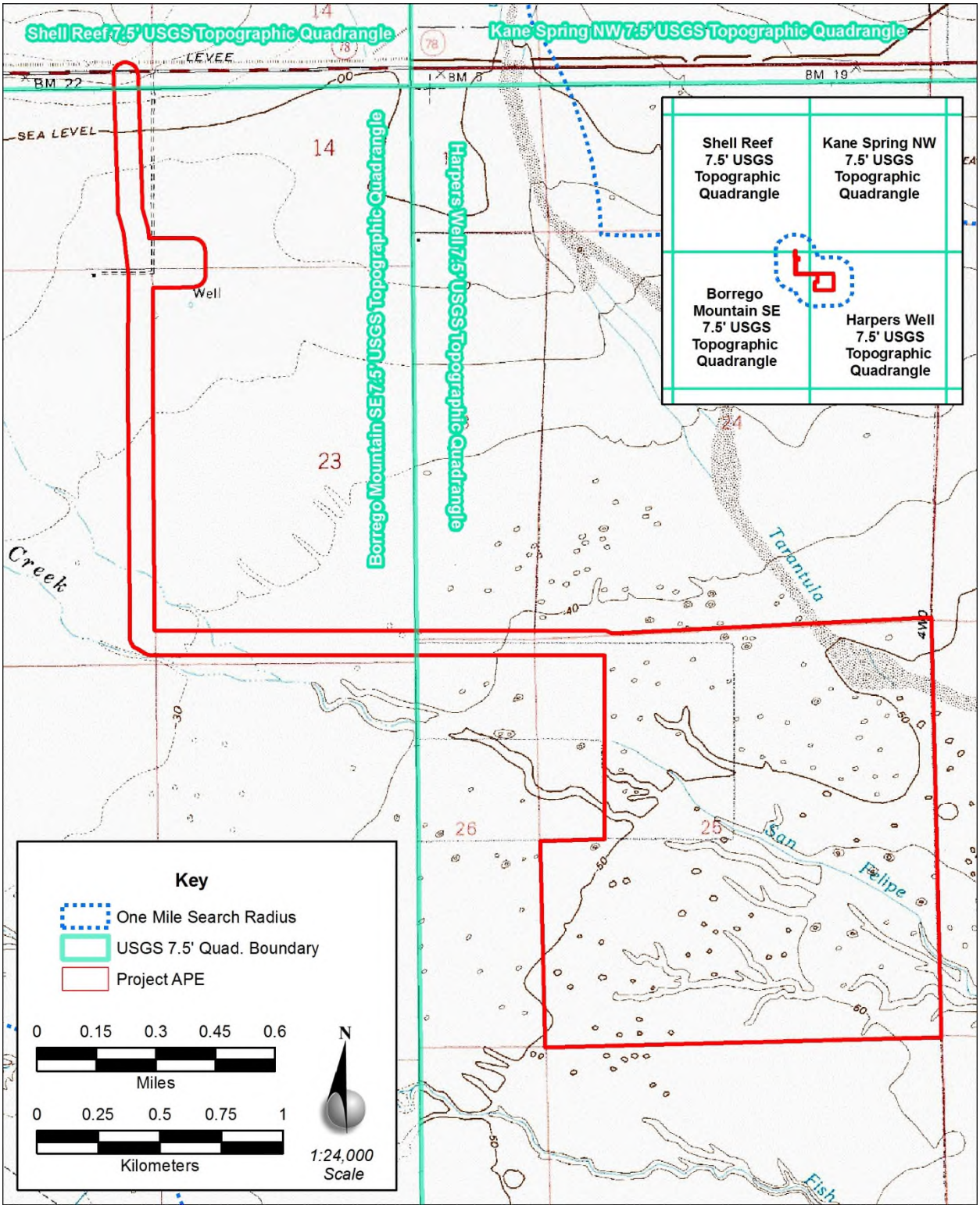

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June 26, 2017

Sycuan Band of the Kumeyaay Nation
Cody J. Martinez, Chairperson
1 Kwaaypaay Court
El Cajon, CA 92109

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Martinez,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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Sincerely,

Shelby G. Castells

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scastells@asmaffiliates.com
Senior Archaeologist

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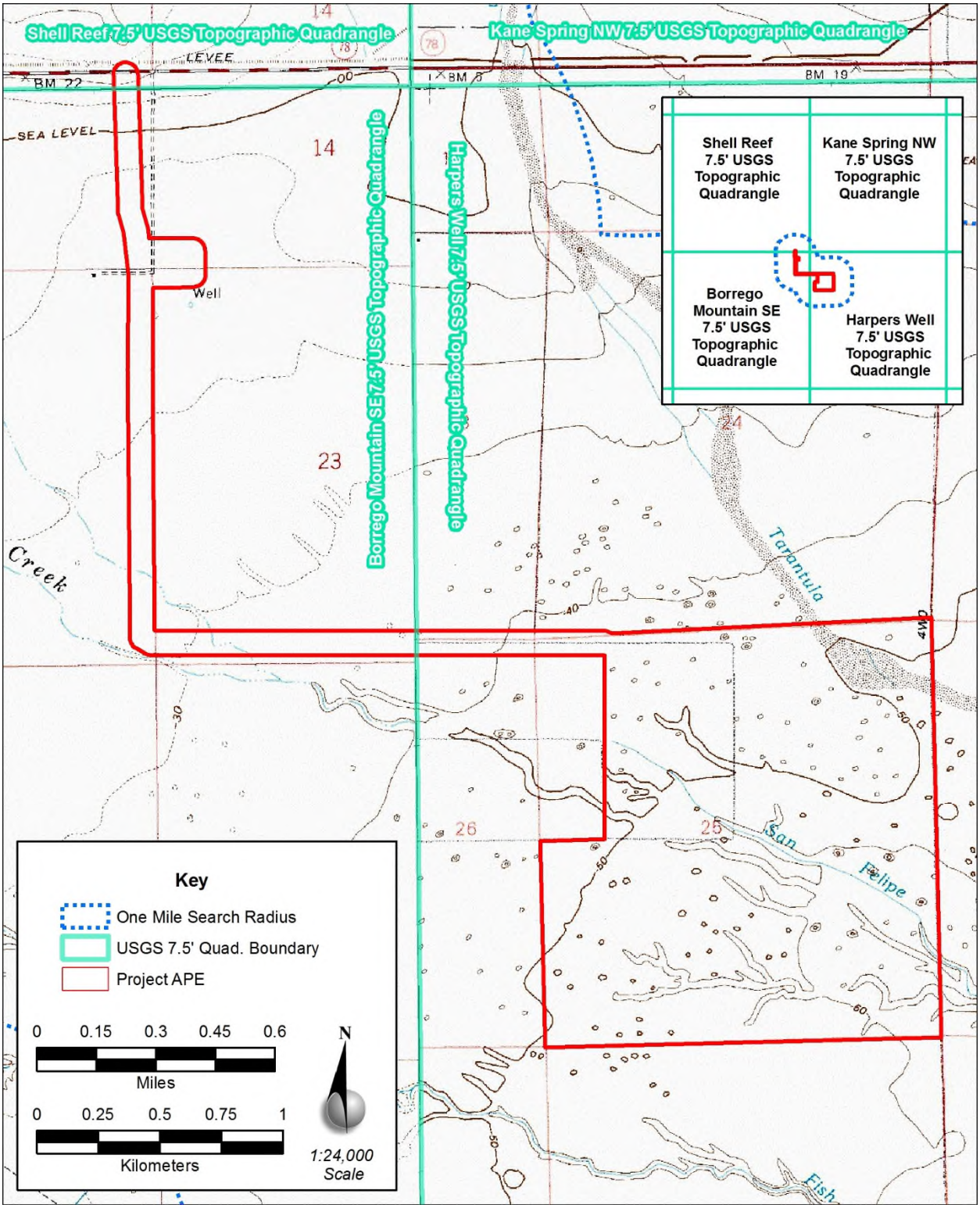

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June 26, 2017

La Posta Band of Mission Indians
Javaughn Miller, Tribal Administrator
8 Crestwood Road
Boulevard, CA 91905

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Miller,

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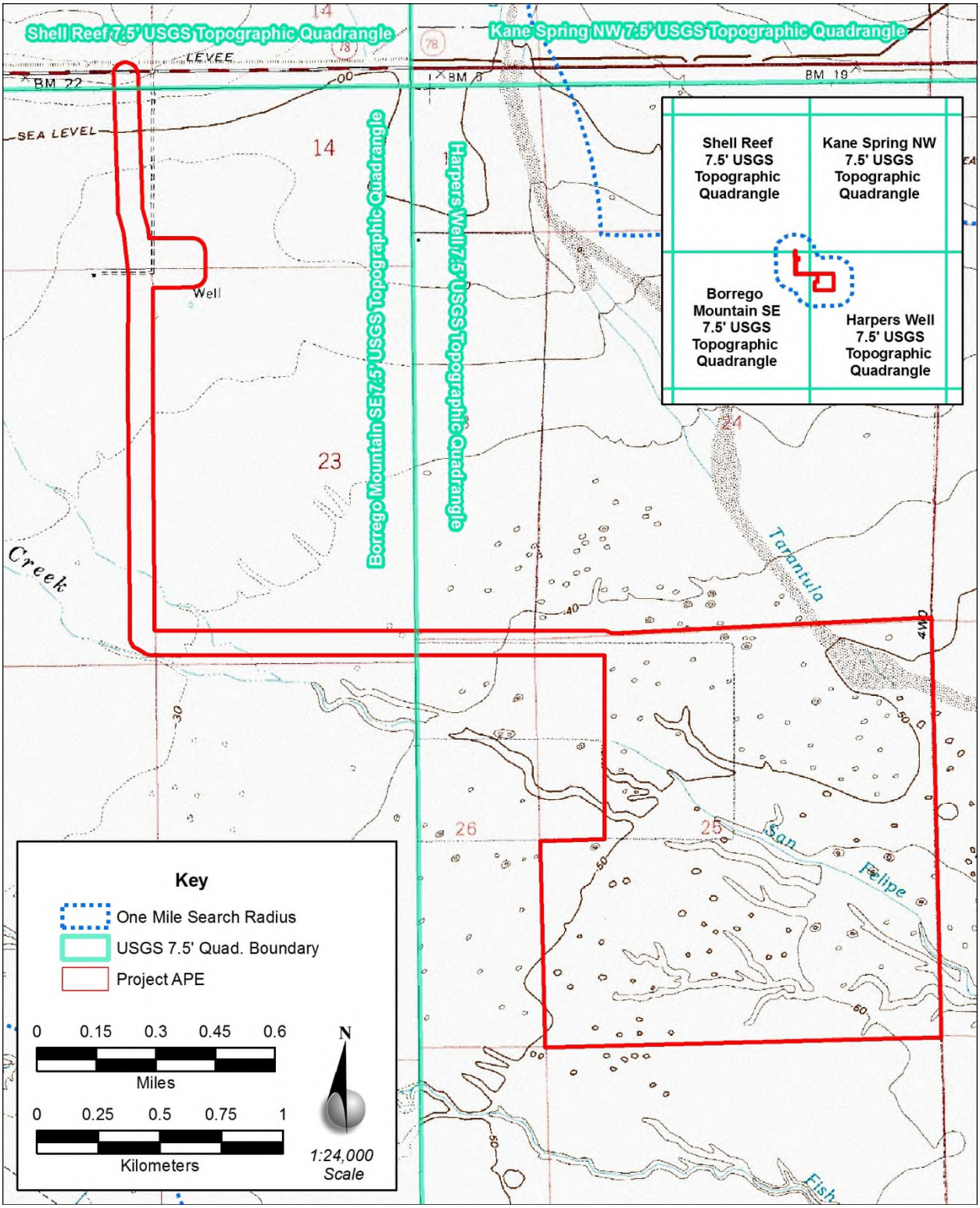

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June 28, 2017

Torres-Martinez Desert Cahuilla Indians
Michael Mirelez, Cultural Resource Coordinator
P.O. Box 1160
Thermal, CA 92274

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Mirelez,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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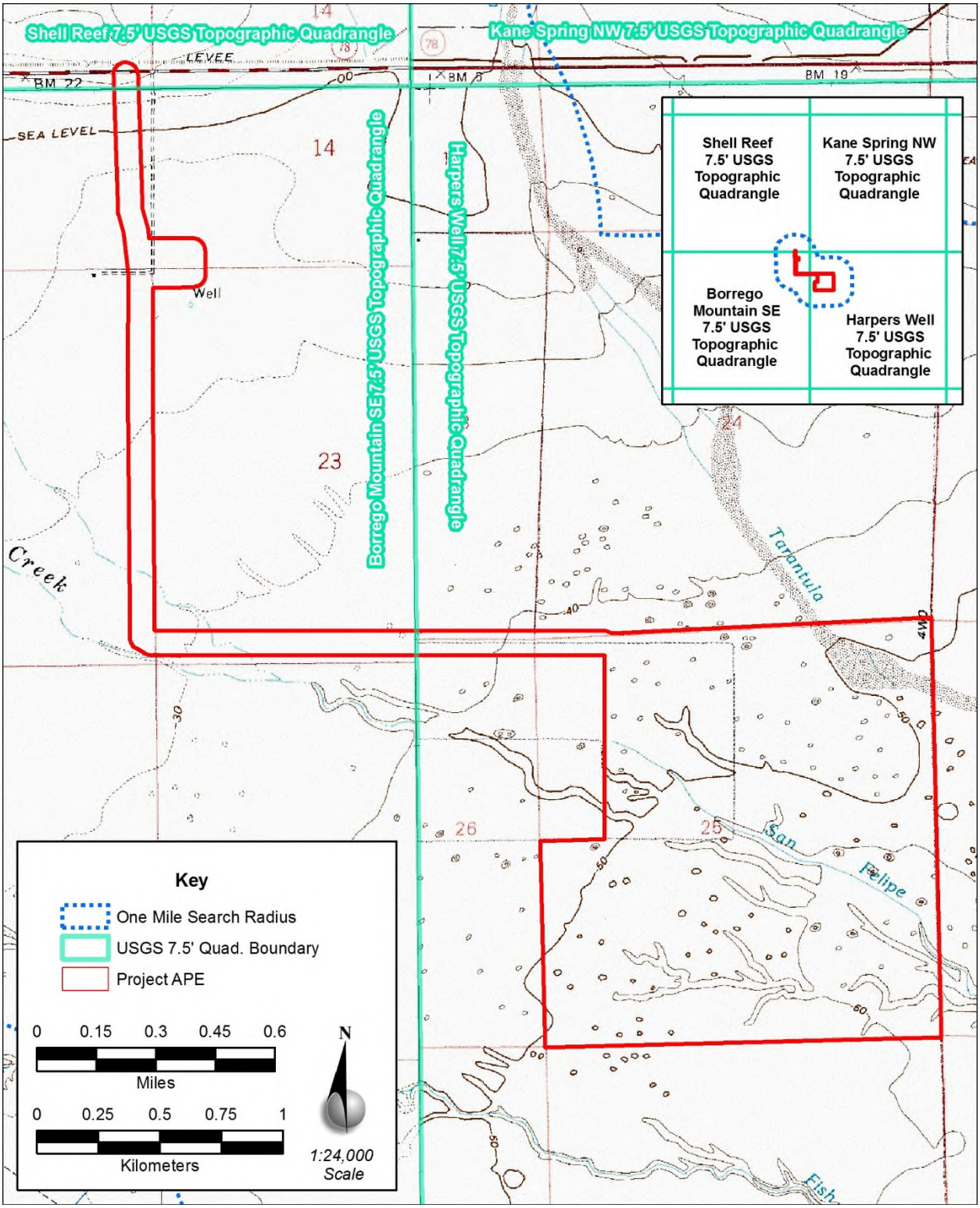

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June 28, 2017

Mesa Grande Band of Mission Indians
Mario Morales, Cultural Resources Representative
PMB 366 35008 Pala Temecula Road
Pala, CA 92059

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Morales,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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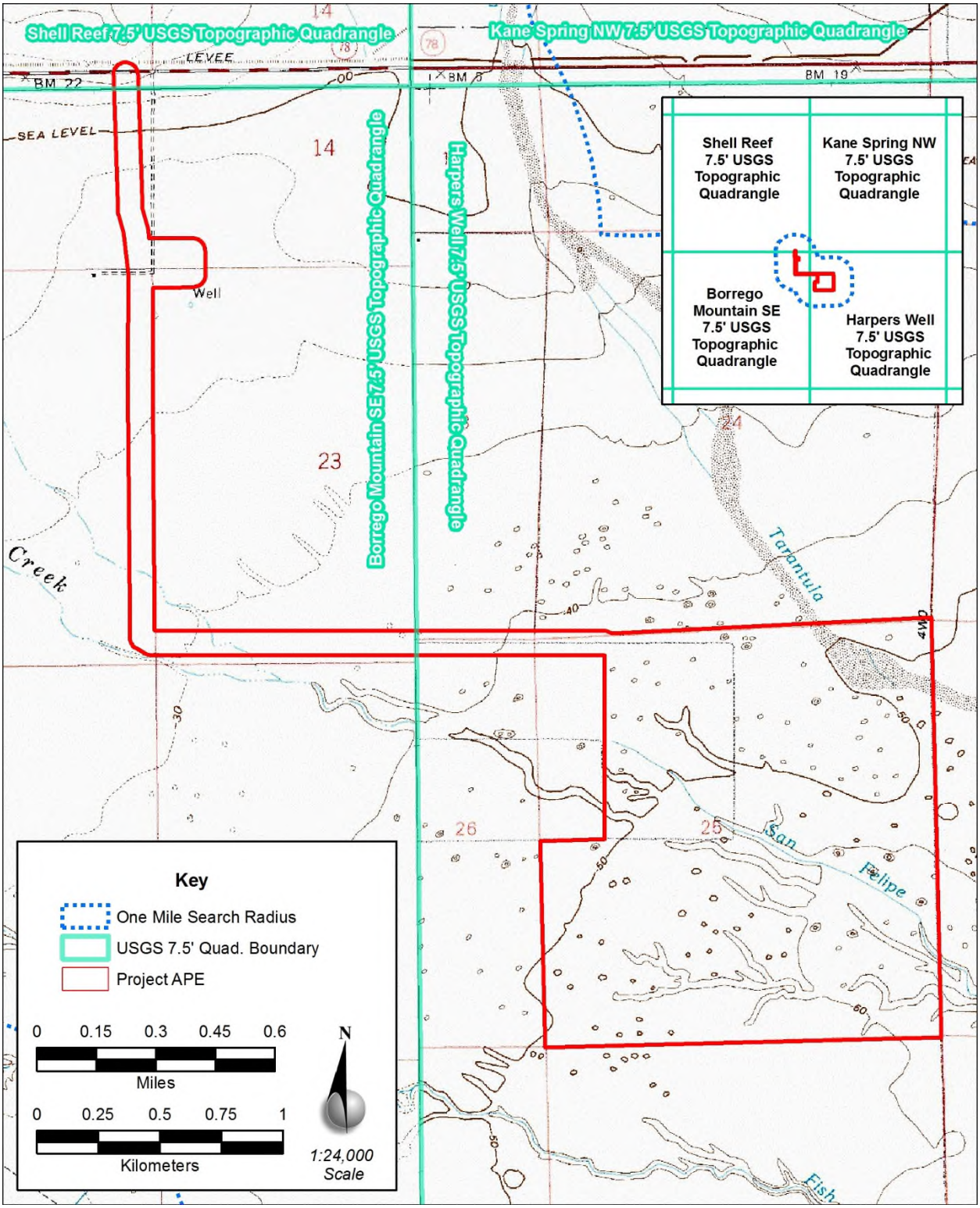

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June 28, 2017

Soboba Band of Mission Indians
Rosemary Morillo, Chairperson
P.O. Box 487
San Jacinto, CA 92583

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Morillo,

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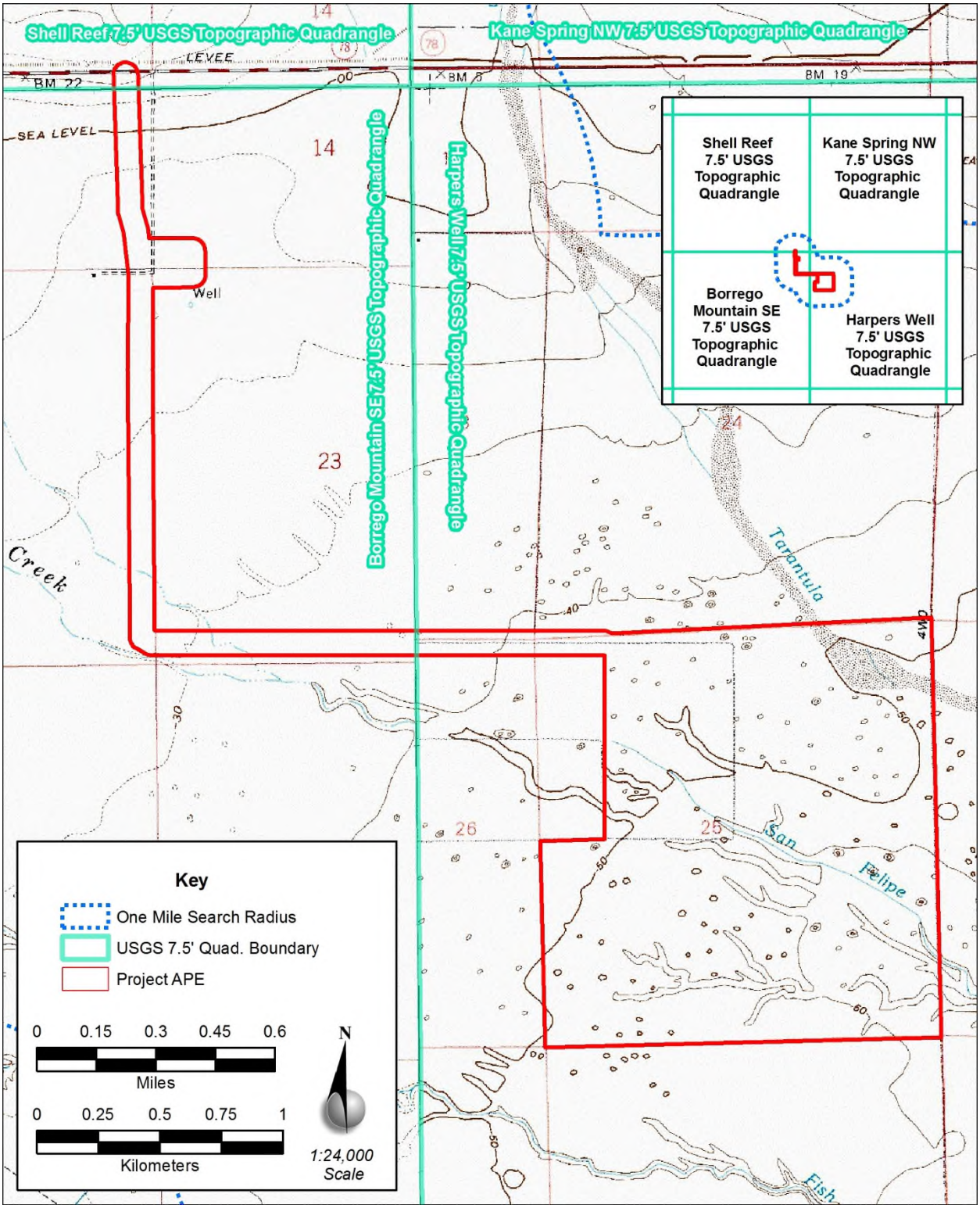

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June 28, 2017

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. Box 487
San Jacinto, CA 92581

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Ontiveros,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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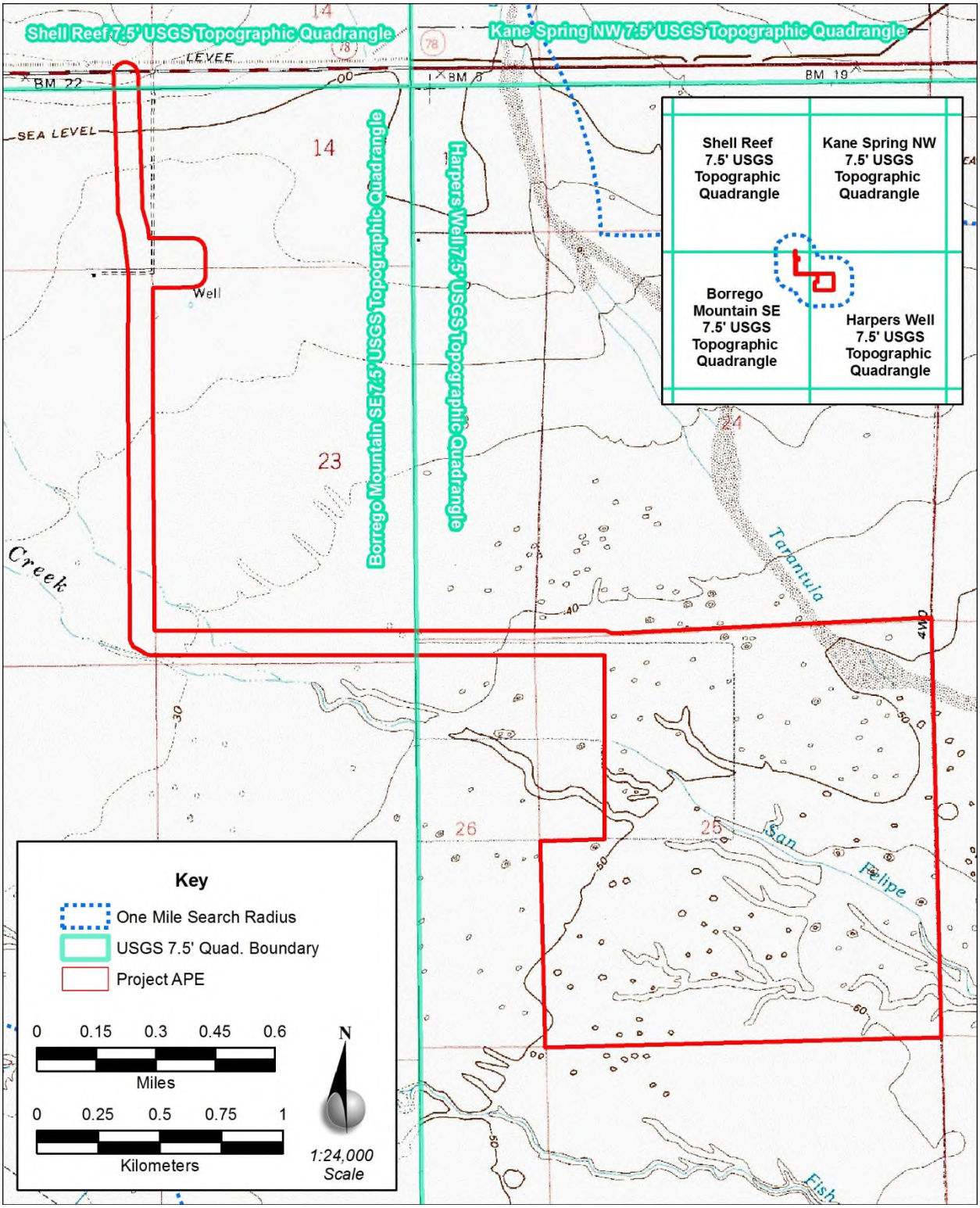

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June 26, 2017

Inaja Band of Mission Indians
Rebecca Osuna, Spokesperson
2005 S. Escondido Blvd.
Escondido, CA 92025-8207

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Osuna,

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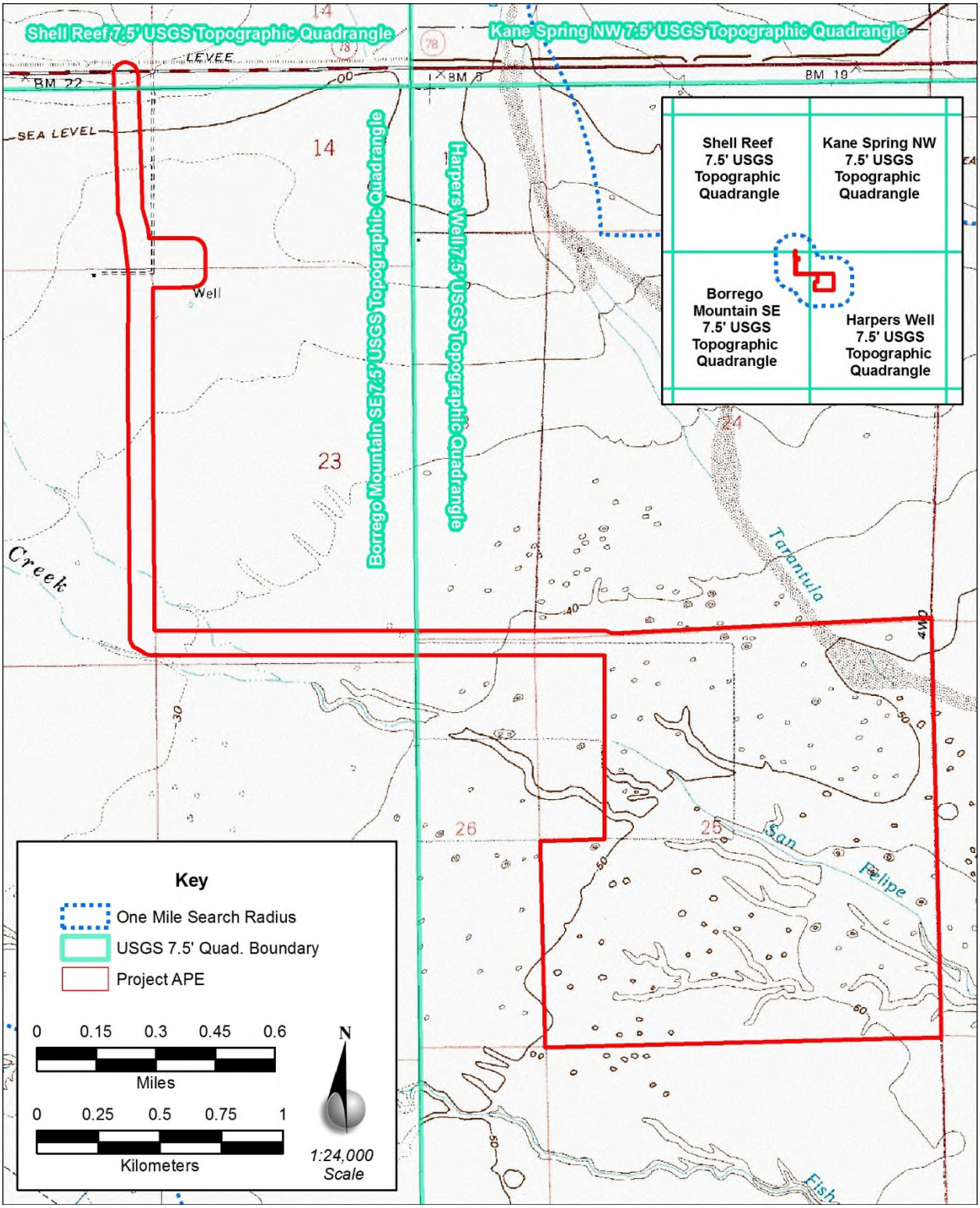

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June 26, 2017

Mesa Grande Band of Mission Indians
Virgil Oyos, Chairperson
P.O. Box 270
Santa Ysabel, CA 92070

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Oyos,

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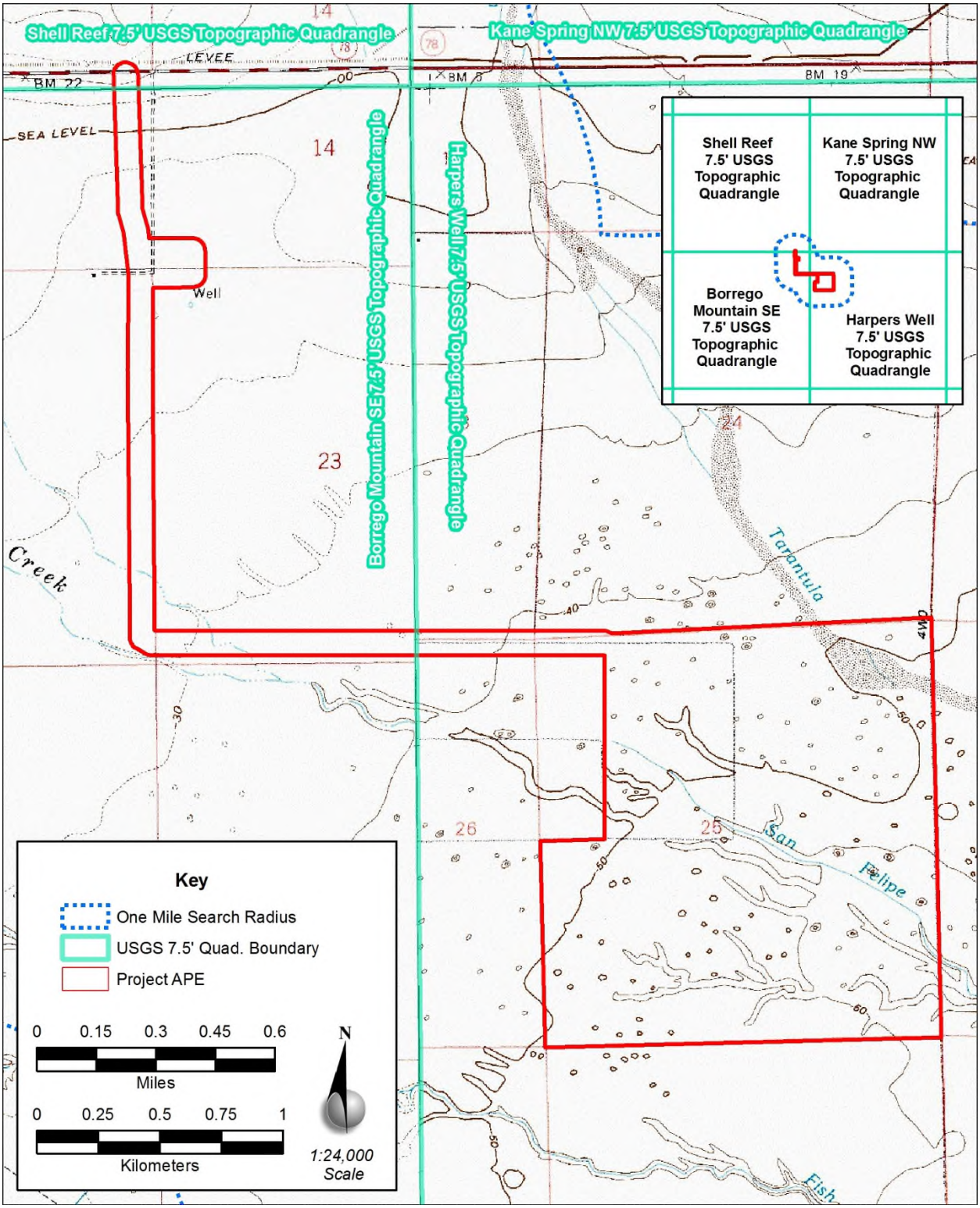

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June 26, 2017

La Posta Band of Mission Indians
Gwendolyn Parada, Chairperson
8 Crestwood Road
Boulevard, CA 91905

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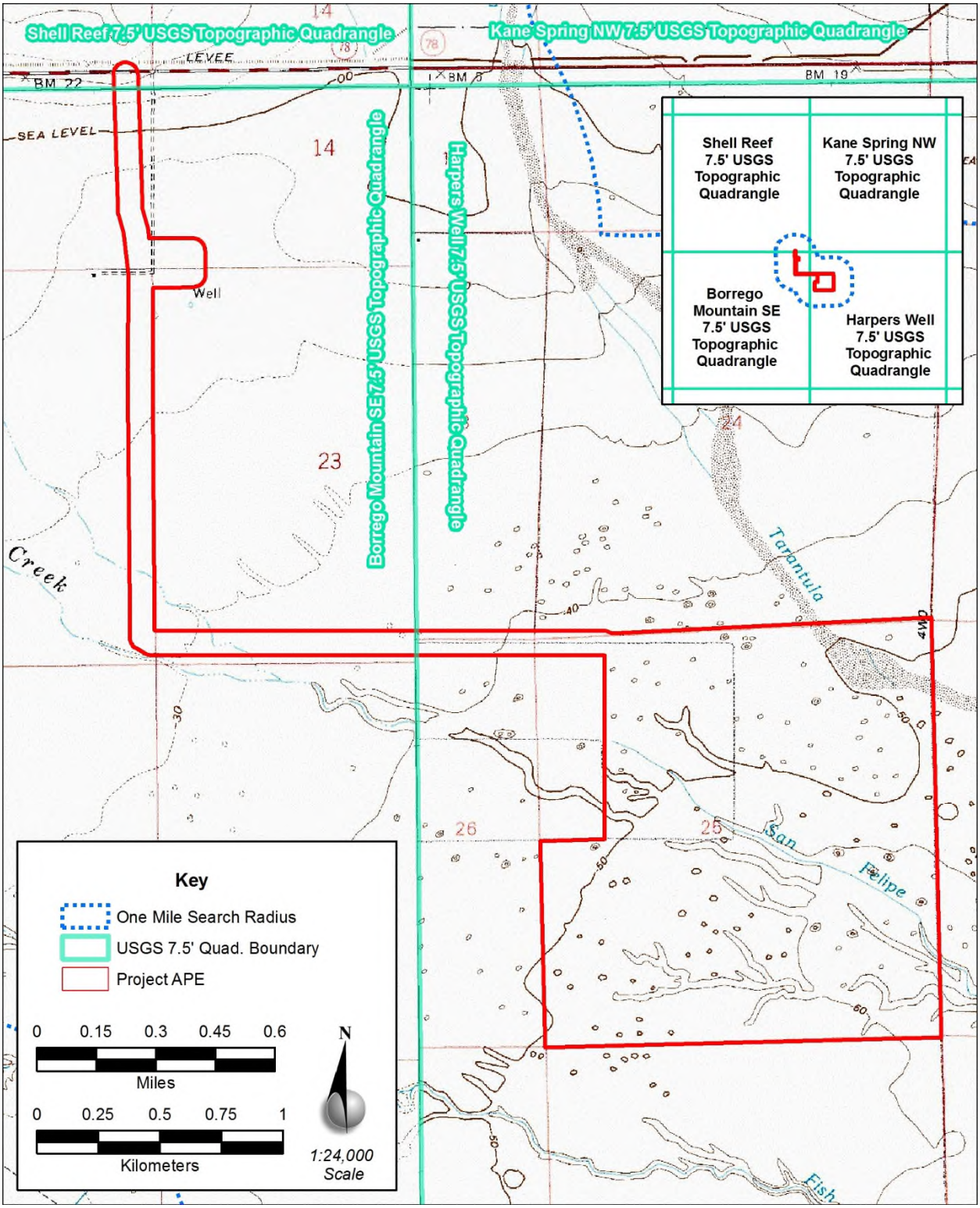

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June 28, 2017

Los Coyotes Band of Mission Indians
John Perada, Environmental Director
P.O. Box 189
Warner Springs, CA 92086

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Perada,

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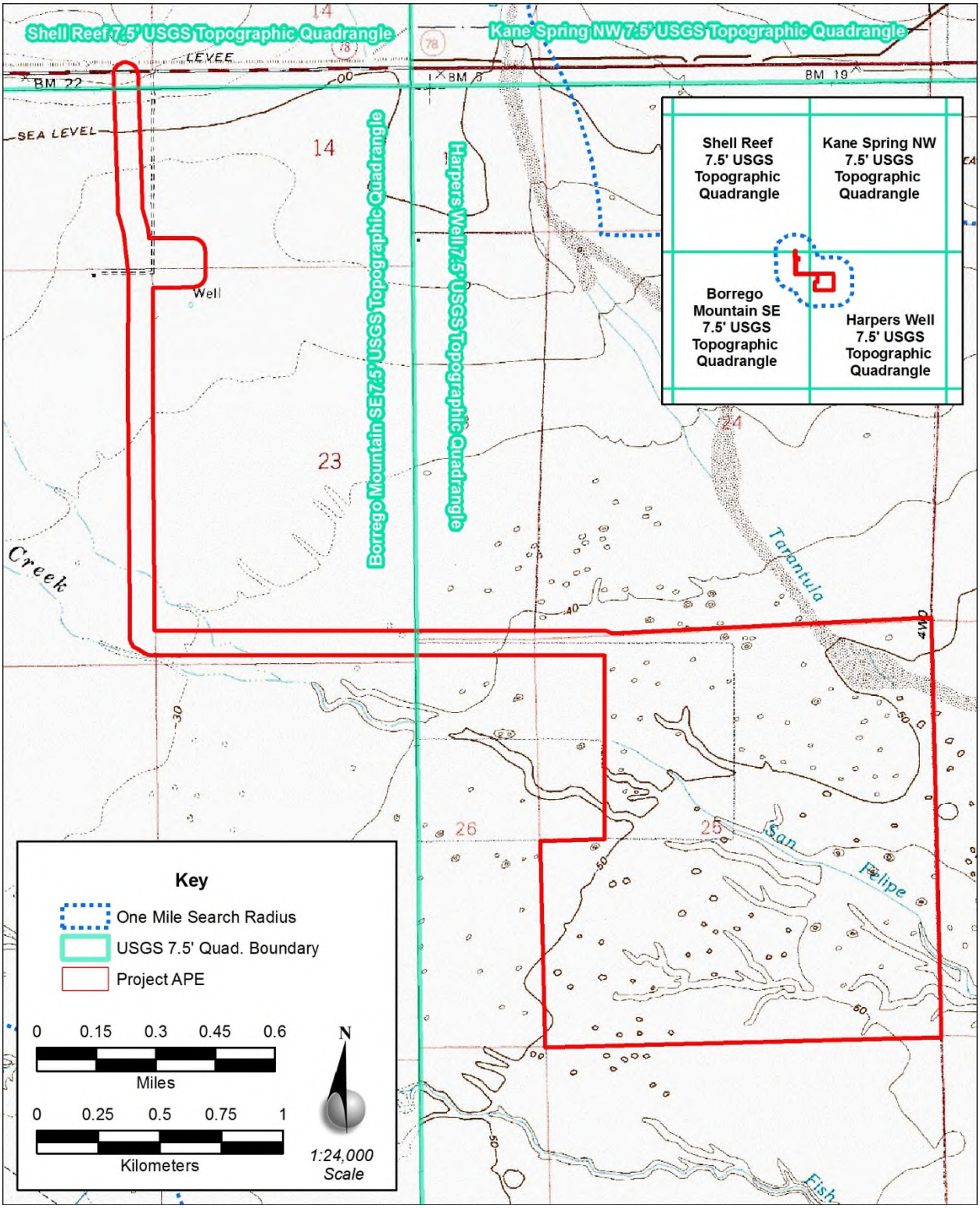

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June 26, 2017

Iipay Nation of Santa Ysabel
Virgil Perez, Chairperson
P.O. Box 130
Santa Ysabel, CA 92070

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Perez,

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Sincerely,

Shelby G. Castells

Shelby Gunderman Castells, M.A., RPA
scastells@asmaffiliates.com
Senior Archaeologist

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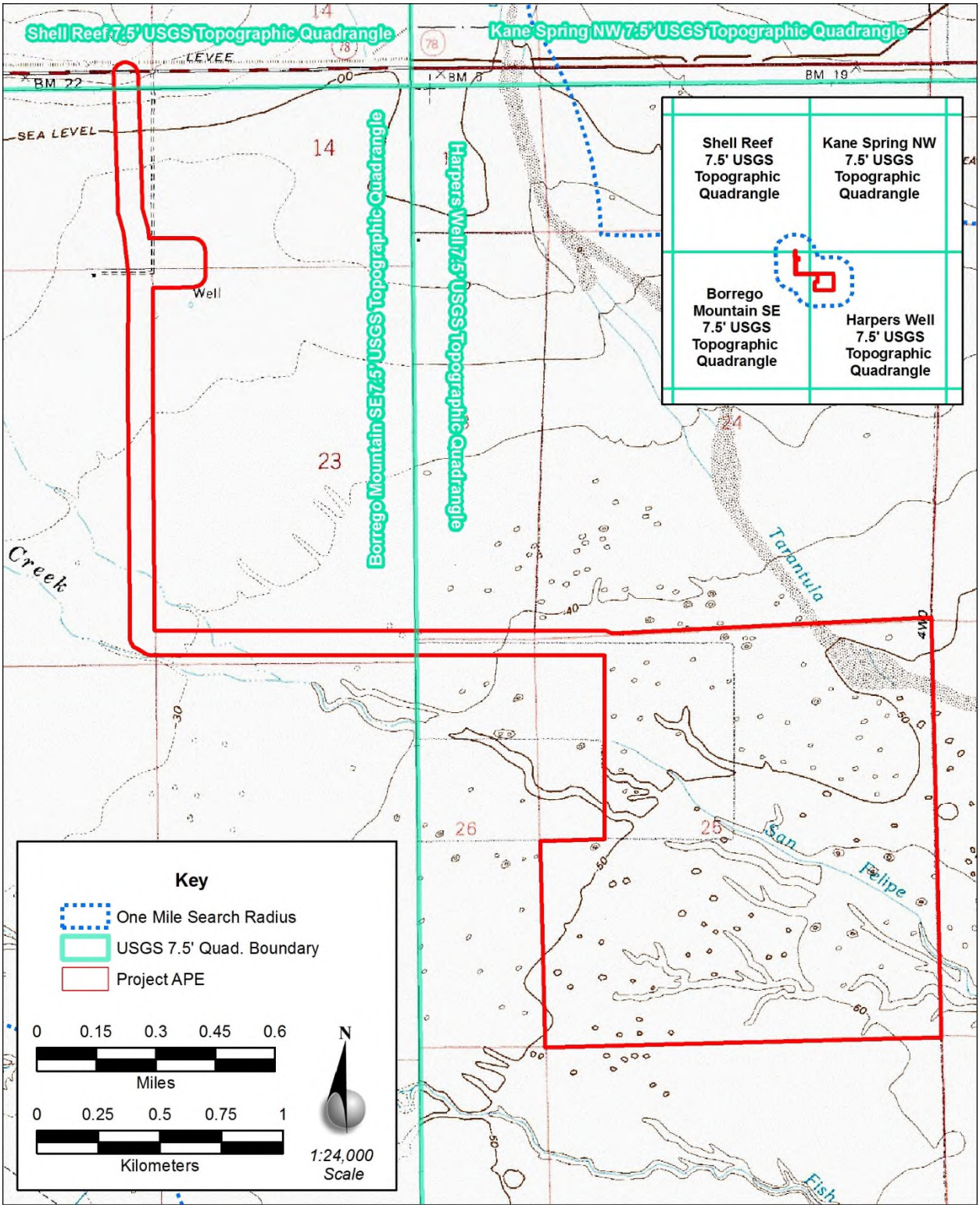

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June 26, 2017

Jamul Indian Village
Erica Pinto, Chairperson
P.O. Box 612
Jamul, CA 91935

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Pinto,

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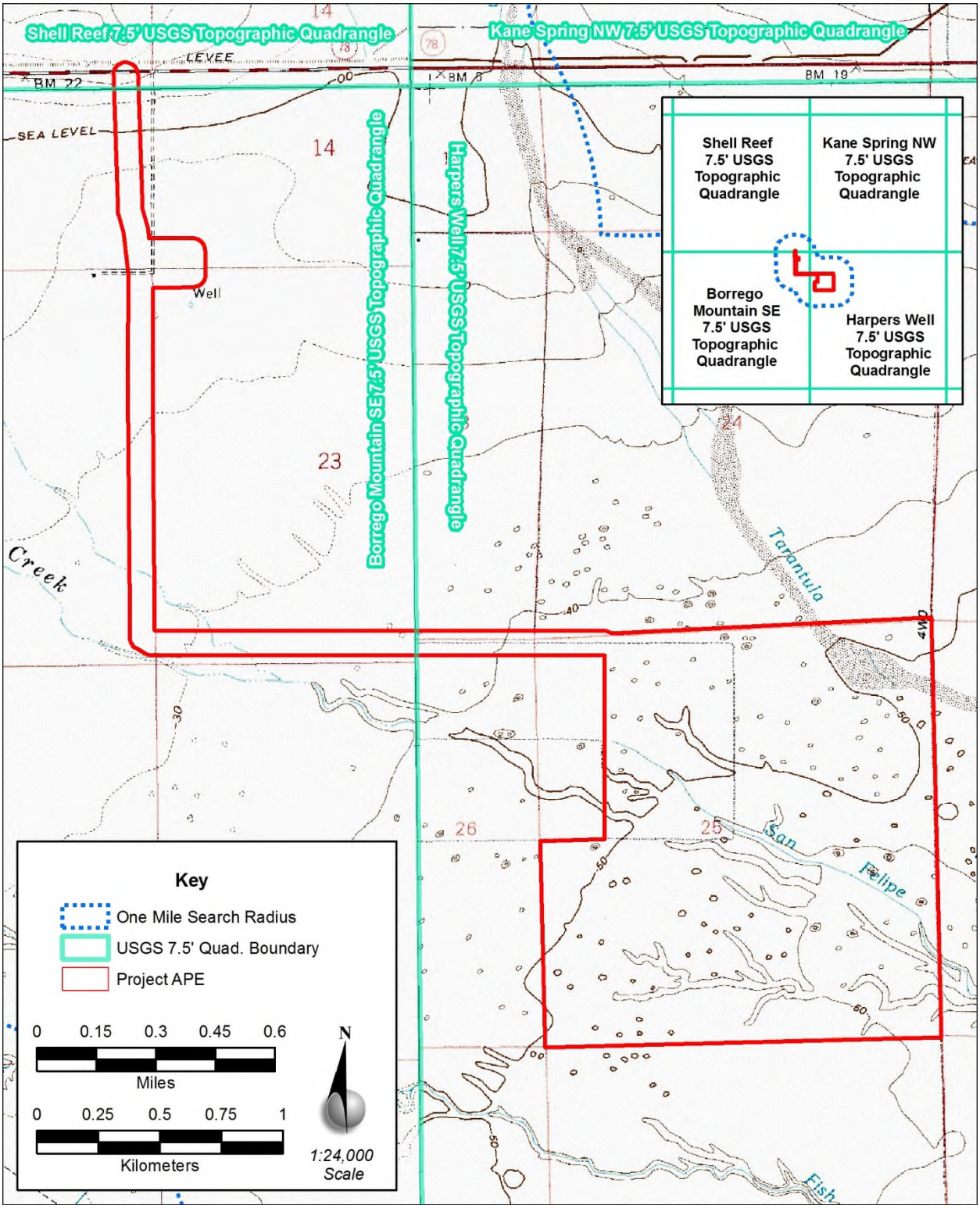

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June 26, 2017

Ewiiaapaayp Tribal Office
Robert Pinto, Chairperson
4054 Willows Road
Alpine, CA 91901

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Pinto,

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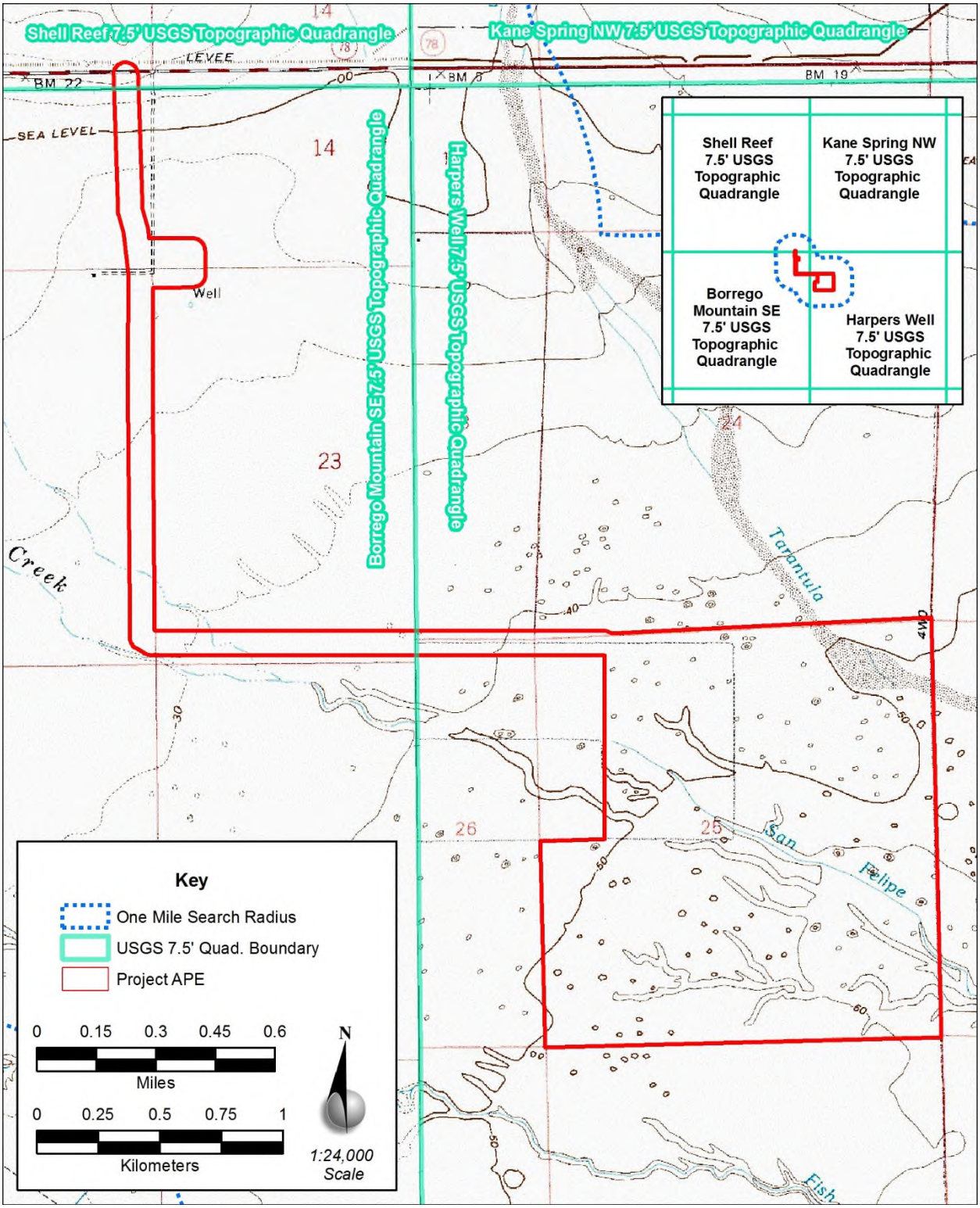

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June 26, 2017

Barona Group of the Capitan Grande
Edwin Romero, Chairperson
1095 Barona Road
Lakeside, CA 92040

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Romero,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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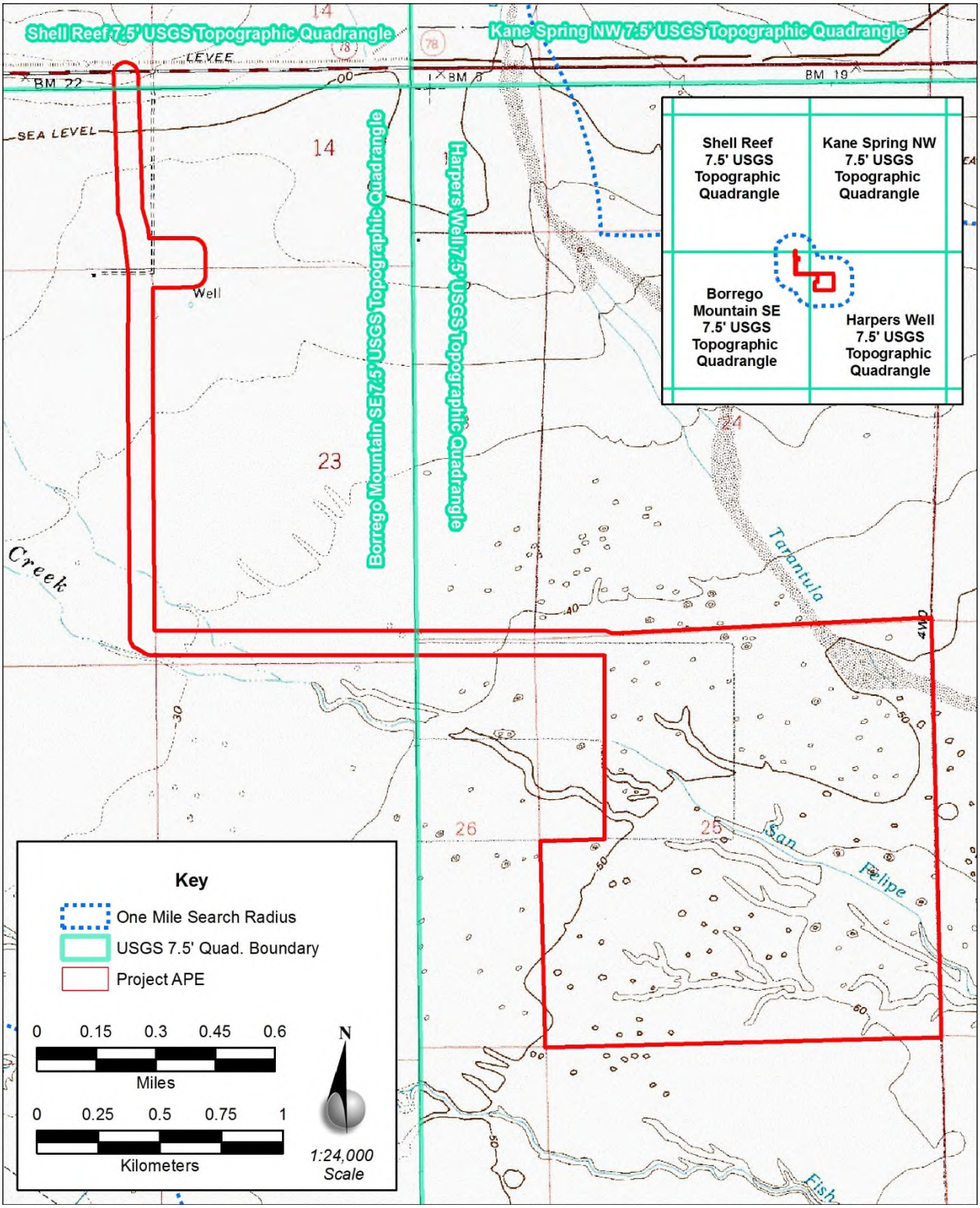

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June 28, 2017

Cahuilla Band of Indian
Daniel Salgado, Chairperson
52701 U.S. Highway 371
Anza, CA 92539

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Salgado,

ASM Affiliates, Inc. (ASM) is conducting a cultural resources study for the Titan Solar II LLC's Seville 4 Solar Project (Project). The Project is located on 340 acres in northwestern Imperial County, within APN 018-170-057-000, approximately eight miles west of the junction of State Highway 78 and State Highway 86, and approximately three miles east of the San Diego County Line. The Project is shown on the Borrego Mtn. SE, Harpers Well SE, and Shell Reef USGS 7.5' Quad map, within Township 12 South, Range 9 East, Sections 14, 15, 23, 22, 24, 25, and 26 (Figure 1). The Project proposes to develop solar panels, a retention basin, a collector station, a 12.5 kV or 34.5 kV generator intertie line, and a 12. 5 kV/92 kV or 34.5 kV/92 kV substation. Imperial County is the lead agency.

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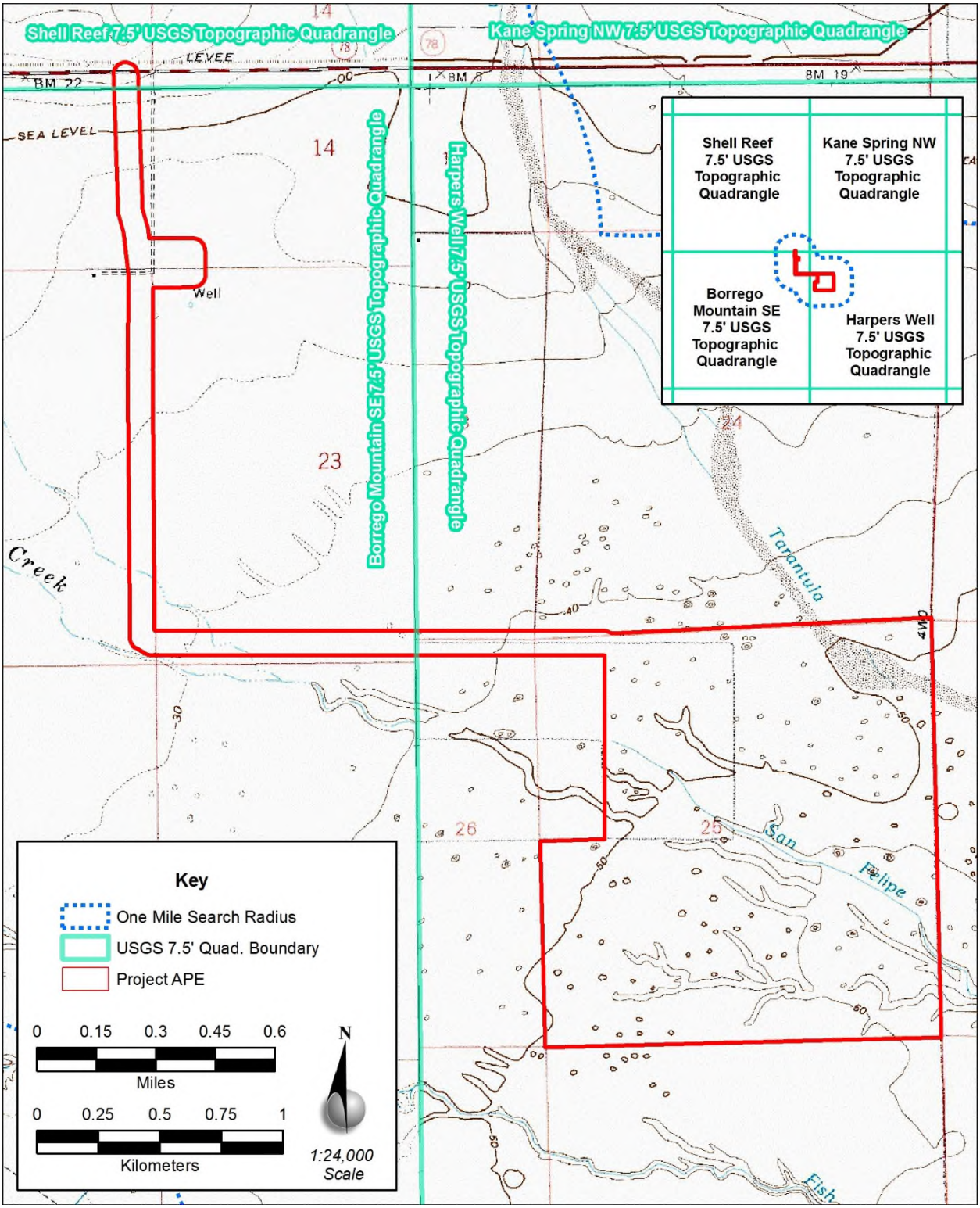

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June 26, 2017

Manzanita Band of Kumeyaay Nation
Angela Elliott Santos, Chairperson
P.O. Box 1302
Boulevard, CA 91905

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Santos,

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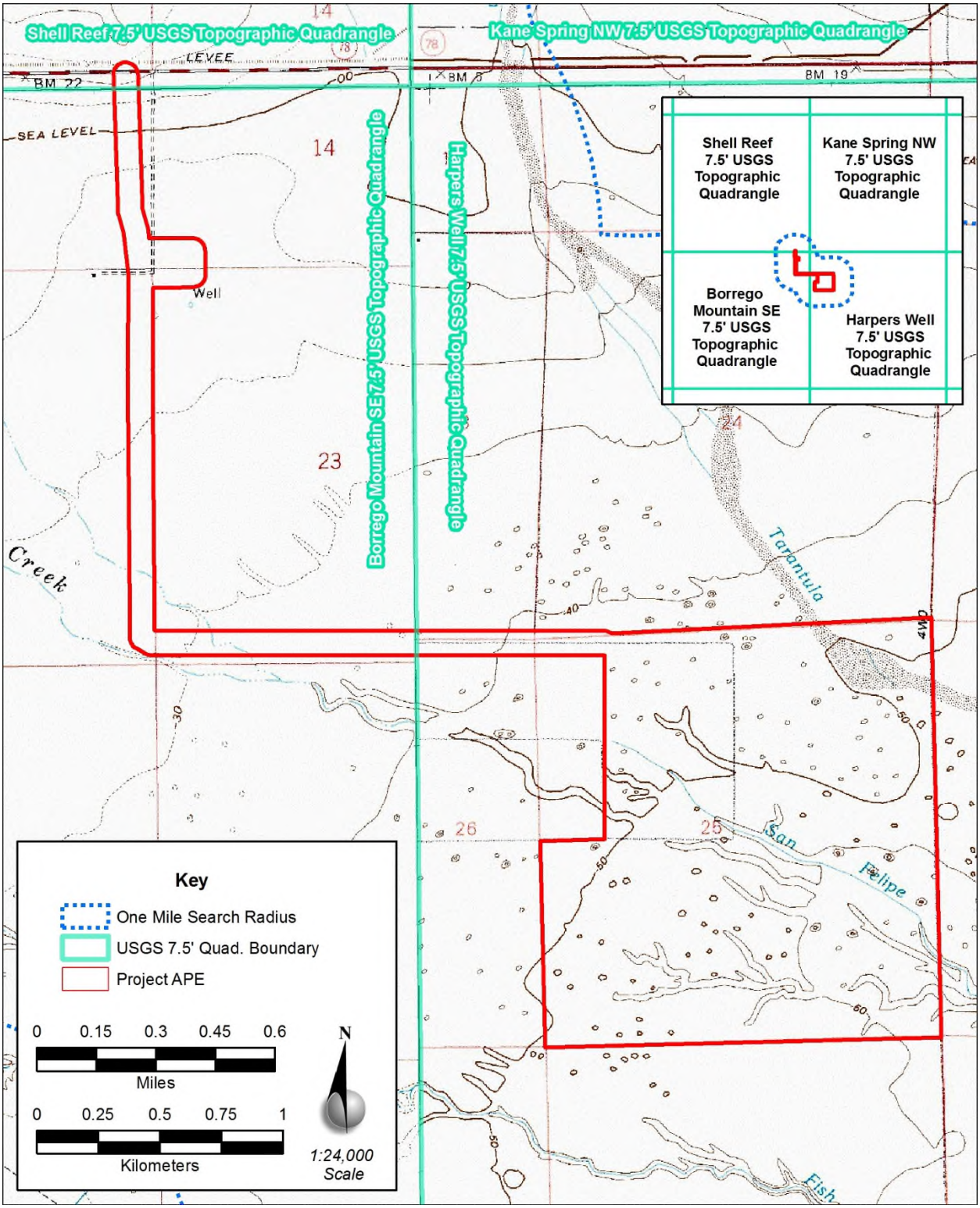

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June 28, 2017

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Road
Banning, CA 92220

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Torres,

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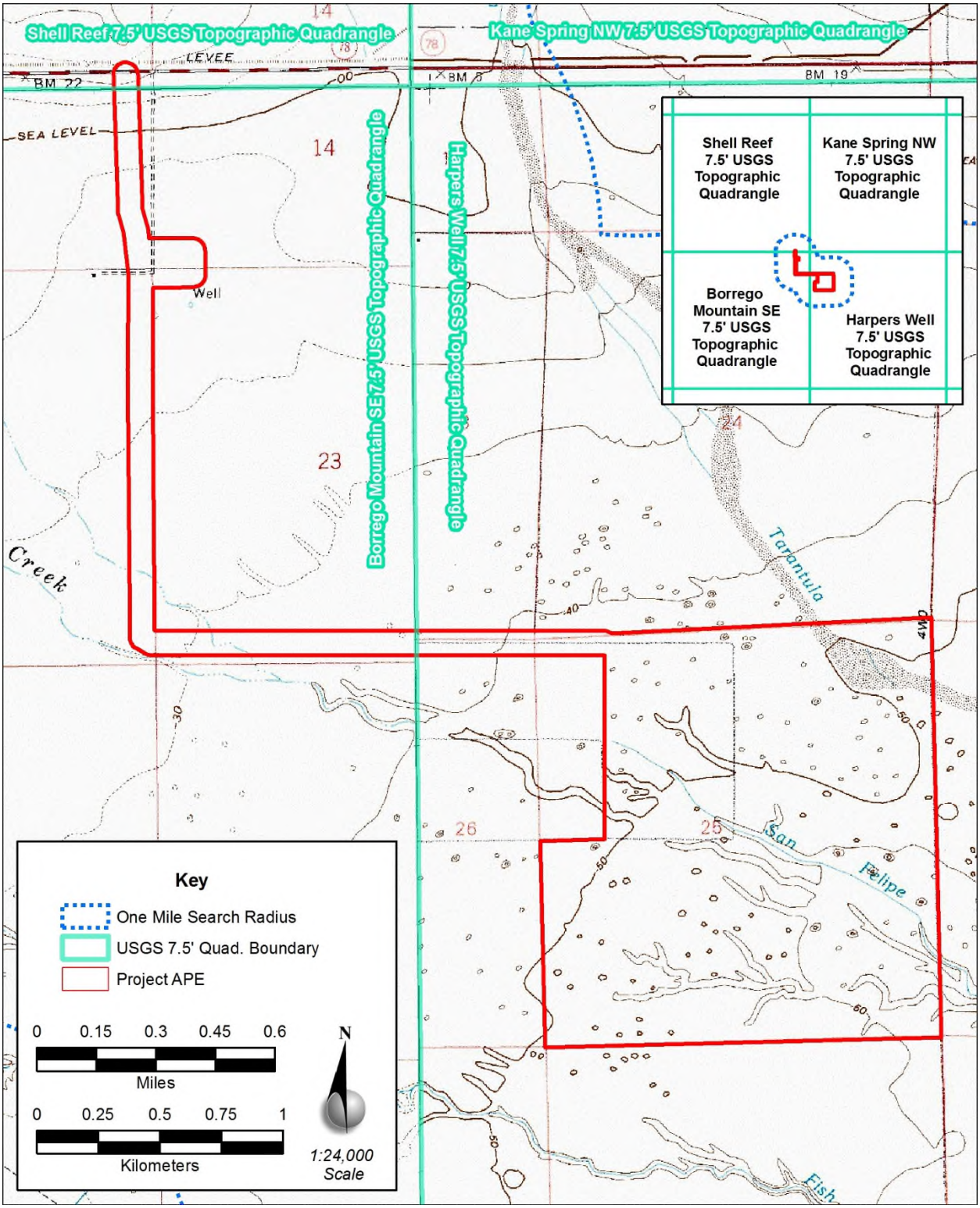

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June 28, 2017

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846
Coachella, CA 92236

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Ms. Vance,

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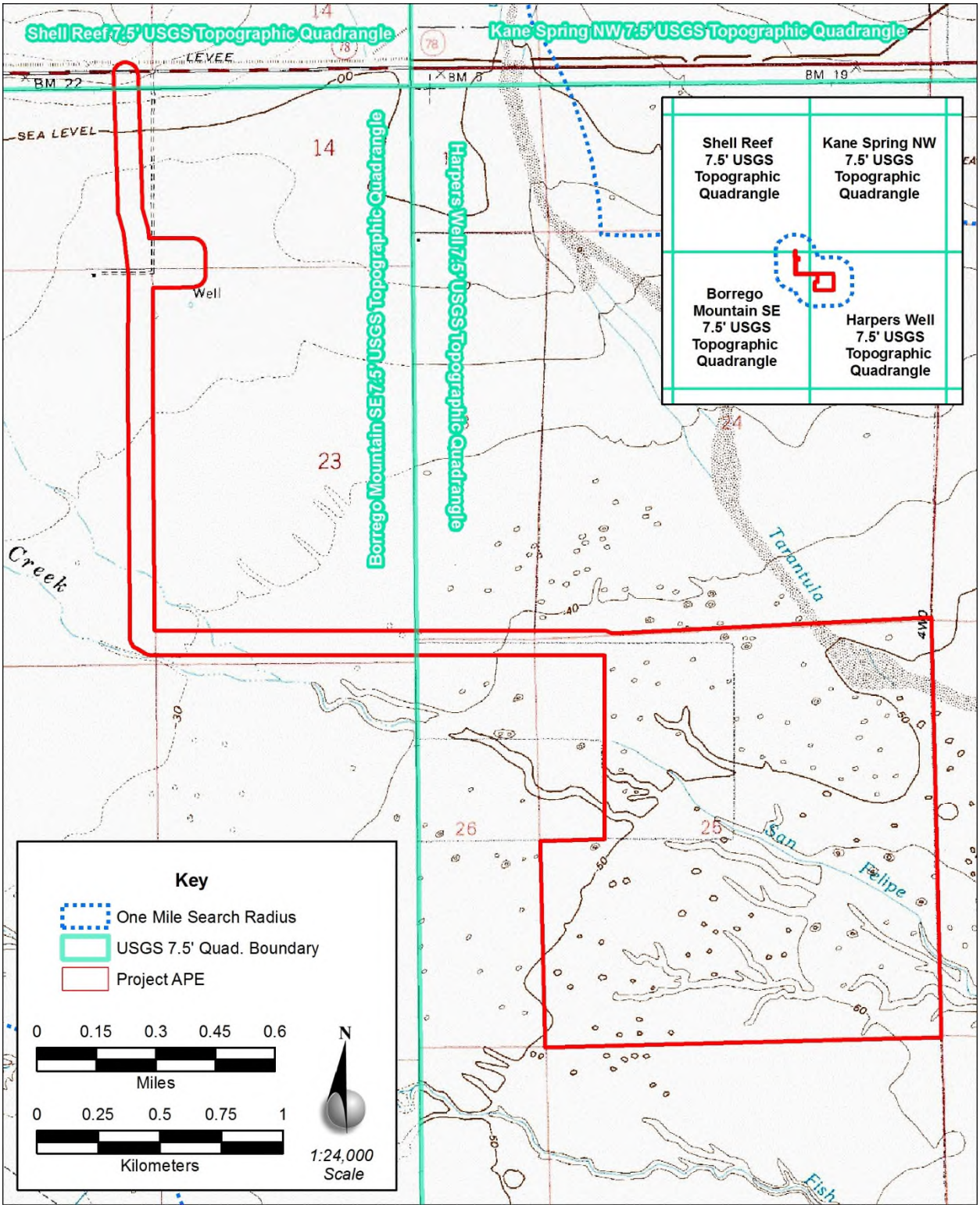

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June 26, 2017

Viejas Band of Kumeyaay Indians
Robert J. Welch, Chairperson
1 Viejas Grande Road
Alpine, CA 91901

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

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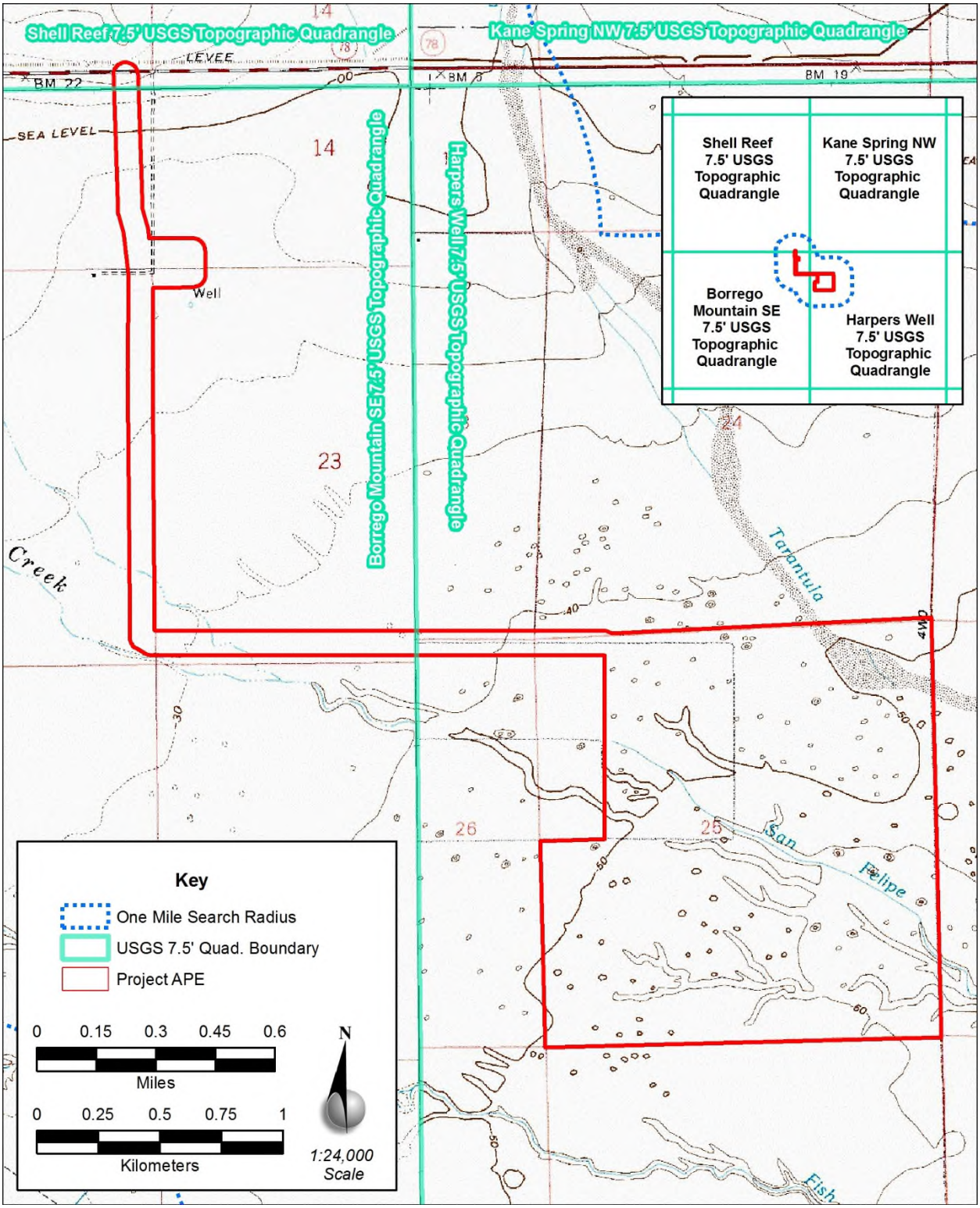

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June 28, 2017

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway
Indio, CA 92203

Re: Cultural Resources Study for the Titan Solar II LLC's Seville 4 Solar Project, Imperial County, California (ASM PN # 28540)

Dear Mr. Welmas,

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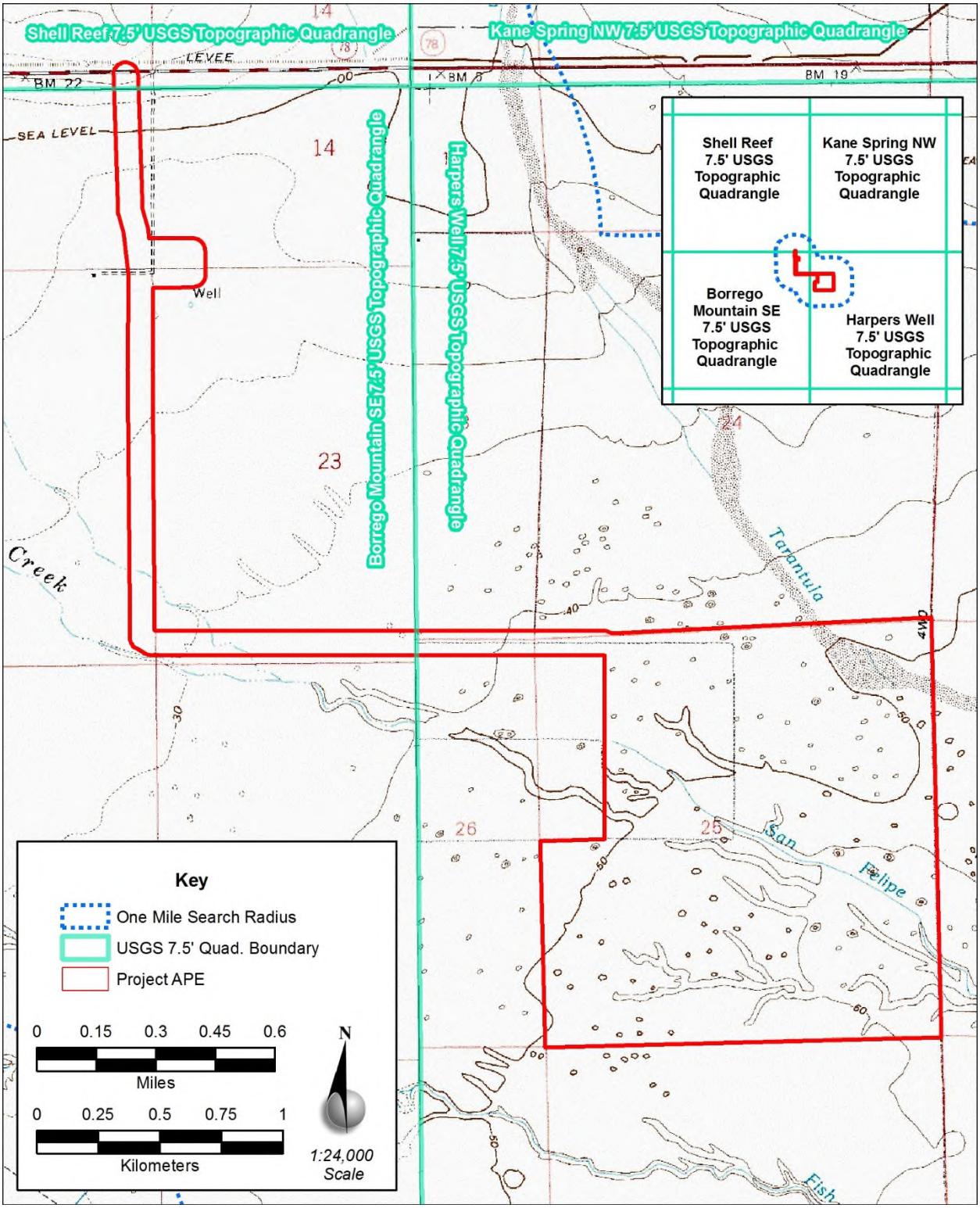

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VIEJAS
TRIBAL GOVERNMENT

P.O Box 908
Alpine, CA 91903
#1 Viejas Grade Road
Alpine, CA 91901

Phone: 6194453810
Fax: 6194455337
viejas.com

June 29, 2017

Shelby G. Castells
Senior Archaeologist
ASM Affiliates
2034 Corte Del Nogal
Carlsbad, CA 92011

RE: Seville 4 Solar Project

Dear Ms.Castells,

The Viejas Band of Kumeyaay Indians ("Viejas") has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to Viejas.

Viejas Band request that a Kumeyaay Cultural Monitor be on site for ground disturbing activities to inform us of any new developments such as inadvertent discovery of cultural artifacts, cremation sites, or human remains.

Please call me at 619-659-2312 or Ernest Pingleton at 619-659-2314 or email, rteran@viejas-nsn.gov or epingleton@viejas-nsn.gov , for scheduling. Thank you.

Sincerely,

Ray Teran, Resource Management
VIEJAS BAND OF KUMEYAAY INDIANS

AUGUSTINE BAND OF CAHUILLA INDIANS

PO Box 846 84-481 Avenue 54 Coachella CA 92236
Telephone: (760) 398-4722
Fax (760) 369-7161
Tribal Chairperson: Amanda Vance
Tribal Vice-Chairperson: William Vance

July 17, 2017

Shelby Gunderman Castells
ASM Affiliates
2034 Corte Del Nogal
Carlsbad, CA 92011

RE: Titan Solar II LLC's Seville 4 Solar Project

Dear Ms. Gunderman Castells -

Thank you for the opportunity to offer input concerning the development of the above-identified project. We appreciate your sensitivity to the cultural resources that may be impacted by your project, and the importance of these cultural resources to the Native American peoples that have occupied the land surrounding the area of your project for thousands of years. Unfortunately, increased development and lack of sensitivity to cultural resources has resulted in many significant cultural resources being destroyed or substantially altered and impacted. Your invitation to consult on this project is greatly appreciated.

At this time we are unaware of specific cultural resources that may be affected by the proposed project. We encourage you to contact other Native American Tribes and individuals within the immediate vicinity of the project site that may have specific information concerning cultural resources that may be located in the area. We also encourage you to contract with a monitor who is qualified in Native American cultural resources identification and who is able to be present on-site full-time during the pre-construction and construction phase of the project. Please notify us immediately should you discover any cultural resources during the development of this project.

Very truly yours,

William Vance
Tribal Vice Chairperson

APPENDIX C

Confidential Maps

(bound separately)

APPENDIX D

Confidential DPR Forms

(bound separately)

PALEONTOLOGICAL TECHNICAL STUDY

SEVILLE 4 SOLAR ENERGY PROJECT

Titan Solar II, LLC

Prepared for: **Ericsson-Grant, Inc.**
5145 Avenida Encinas, Suite H
Carlsbad, CA 92008

Prepared by: **Paleo Solutions, Inc.**
911 S. Primrose Ave., Unit N
Monrovia, CA 91016

Geraldine Aron, M.S. – Principal Investigator
Nathan Dickey, M.S. – Report Author

PSI Report: CA17ImperialEGI01R

October 24, 2017

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1.0 EXECUTIVE SUMMARY

This report presents the results of the paleontological technical study conducted by Paleo Solutions, Inc. (Paleo Solutions) under contract to Ericsson-Grant, Inc. (EGI) in support of the Titan Solar II, LLC Seville 4 Solar Energy Project (Project) regulated by the Imperial County Planning & Development Services Department, the Lead Agency under the California Environmental Quality Act (CEQA). The Project consists of the construction, operation, and reclamation of a solar farm project approximately 8 miles west of the intersection of State Route (SR) 78 and SR 86 and 1.5 miles south of SR 78 (see Figures 1 and 2). The Project covers up to 174 acres of a 572.10 acre parcel. All paleontological work was completed in compliance with applicable state regulations and best practices in mitigation paleontology (Murphey et al., 2014).

The Project area was evaluated based on an analysis of existing paleontological data. The three components of the analysis of existing data included a geologic map review, a literature search, and an institutional record search at the San Diego Natural History Museum (SDNHM). Geologic mapping indicates that the Project area is underlain by the late Pleistocene- to Holocene-aged (approximately 37,000 to 240 years ago) Lake Cahuilla Beds (Dibblee and Minch, 2008a,b; McComas, 2017). According to the record search and the literature search, there are no previously recorded localities within the Project area. However, SDNHM reported that the Lake Cahuilla Beds have produced fossils elsewhere in Imperial County (McComas, 2017).

The Potential Fossil Yield Classification (PFYC) system was applied to the results of the analysis of existing data. The Lake Cahuilla Beds have high paleontological potential (PFYC 4) due to the paleoclimatic and paleoecological information that any recovered fossils can provide (McComas, 2017).

Due to the presence of geologic units with high paleontological potential within the Project area, implementation of measures to reduce the potential adverse impacts resulting from construction-related ground disturbance in native sediments of the Lake Cahuilla Beds is recommended. Based on the available Project information, it is anticipated that this will be primarily limited to grading/blading of access roads, and trenching for underground electrical collection lines and the installation of solar equipment and security fencing. Prior to the start of construction, a paleontological resources monitoring plan should be prepared and implemented by a qualified paleontologist. That plan should include specific locations and construction activities requiring monitoring, procedures to follow for monitoring and fossil discovery, and a curation agreement with the SDNHM or other approved repository.

2.0 INTRODUCTION

This report presents the results of the paleontological technical study conducted by Paleo Solutions under contract to EGI in support of the Titan Solar II, LLC Seville 4 Solar Energy Project (Project). This study was required by the Imperial County Planning & Development Services Department to fulfill their responsibilities as the Lead Agency under CEQA. All paleontological work was completed in compliance with applicable state regulations and best practices in mitigation paleontology (Murphey et al., 2014).

2.1 PROJECT LOCATION

The Project is located in Imperial County, California, within the Salton Trough, approximately 8 miles west of the intersection of SR 78 and SR 86 and 1.5 miles south of SR 78 (Figures 1 and 2). Geologic mapping by T.W. Dibblee and J.A. Minch (2008a,b) indicates that the Project area is underlain by late Pleistocene- to Holocene-aged Lake Cahuilla Beds (see Figure 3).

2.2 PROJECT DESCRIPTION

Titan Solar II, LLC, is proposing to construct, operate, and reclaim a solar farm on approximately 174 acres of private land. The Project site consists of nearly-flat desert lands and approximately 60 acres of idle agricultural fields. The Project proposes to farm solar energy using either thin film or crystalline solar photovoltaic (PV) panels mounted on either fixed or horizontal single-axis tracker frames. Electricity collected by these panels would be would be collected by a direct current collection system routed through buried trenches. Energy would be delivered to pad-mounted inverters in weather-proof enclosures within the arrays. Alternating current electricity would then be transmitted via 34.5 kilovolt (kV) underground collection lines to a new collection station in the northwestern corner of the Project site. The electricity would then be transmitted via a proposed above-ground 34.5 kV generation intertie (gen-tie) line to the proposed Seville 4 Substation in the northwestern corner of the solar farm.

Construction activities would primarily involve grubbing and grading of the Project site for access roads and pads and trenching for underground electrical collection lines and the installation of solar equipment and security fencing. Construction is expected to consist of eight "activities" or phases over six months:

- Access road construction
- Grading/fencing
- Racking installation
- Solar panel installation
- System wiring and trenching
- Inverter installation
- Gen-tie power line construction
- Substation and switch station construction

Approximately 60 acres of the Project area have been previously graded; these acres would only require fine grading to establish access roads and pads. Grading is expected to be followed by trenching for installation of the underground electrical collection lines, then the installation of support piles for solar frames, PV panels and inverters, and the gen-tie line. Depending on the final solar configuration chosen, 153 to 181 acres are expected to be disturbed.

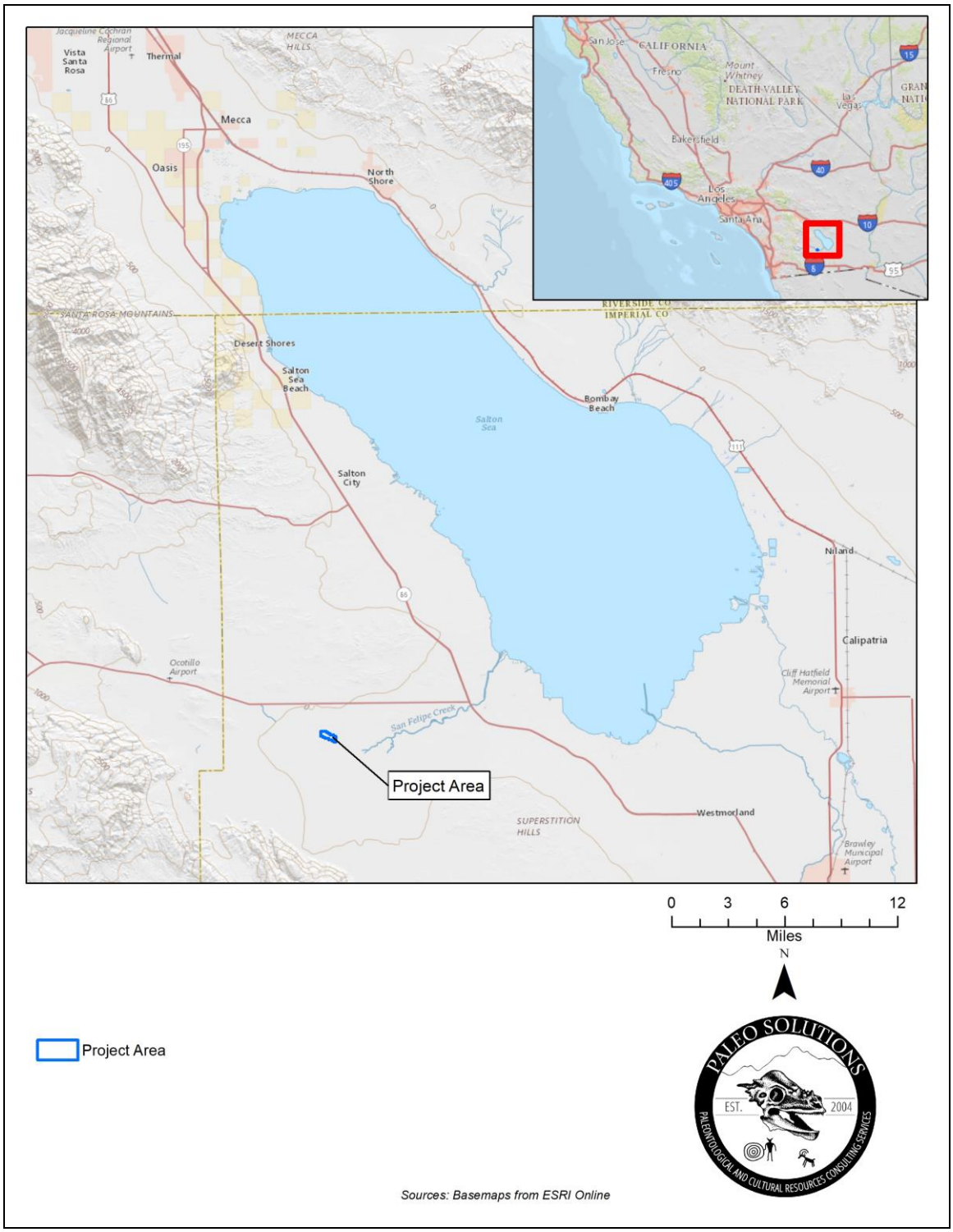

Figure 1. Project Location Map.

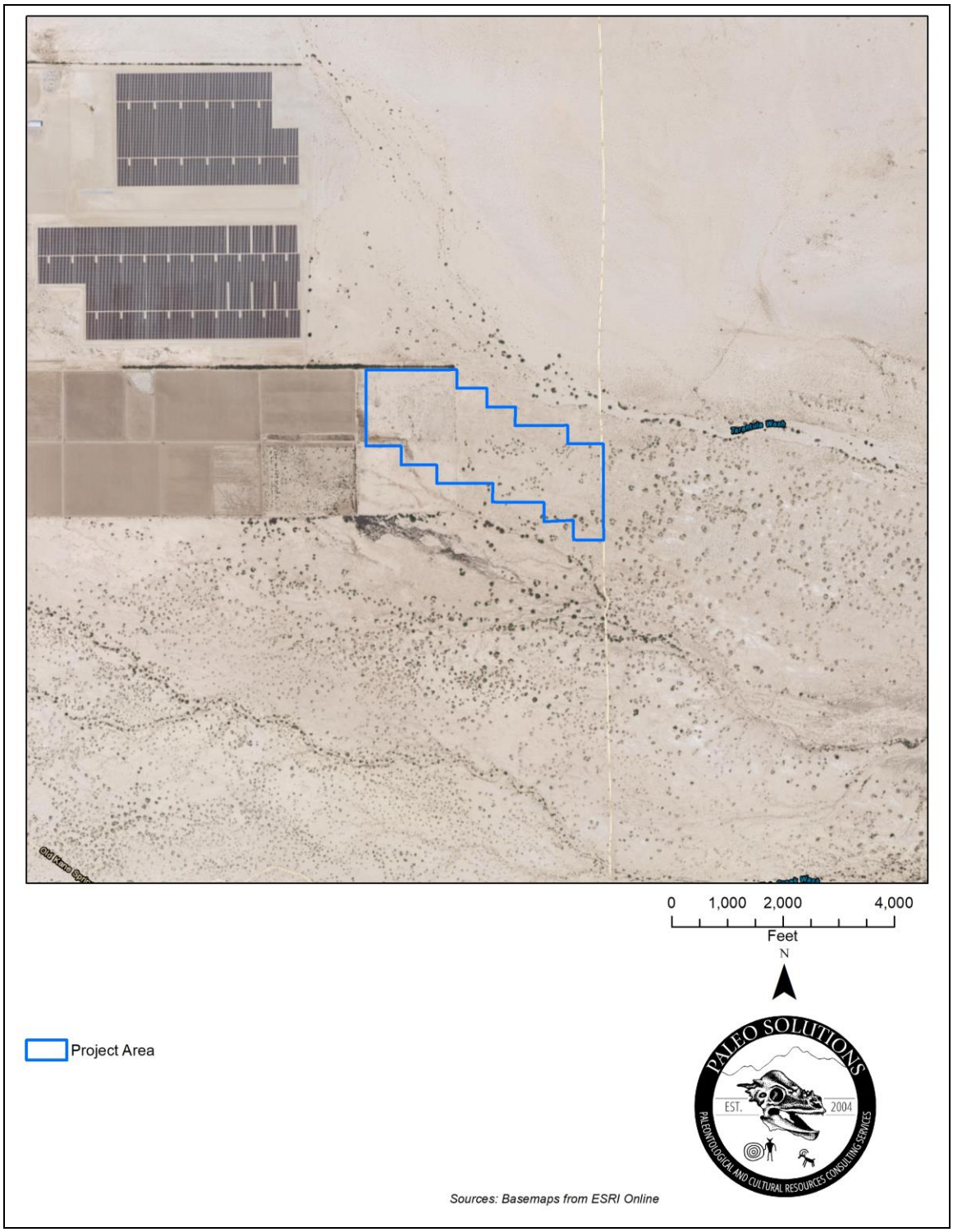

Figure 2. Project Overview Map.

3.0 DEFINITION AND SIGNIFICANCE OF PALEONTOLOGICAL RESOURCES

As defined by Murphey and Daitch (2007): "Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources include not only fossils themselves, but also the associated rocks or organic matter and the physical characteristics of the fossils' associated sedimentary matrix.

The fossil record is the only evidence that life on earth has existed for more than 3.6 billion years. Fossils are considered non-renewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced. Fossils are important scientific and educational resources because they are used to:

- Study the phylogenetic relationships amongst extinct organisms, as well as their relationships to modern groups;
- Elucidate the taphonomic, behavioral, temporal, and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record;
- Reconstruct ancient environments, climate change, and paleoecological relationships;
- Provide a measure of relative geologic dating that forms the basis for biochronology and biostratigraphy, and which is an independent and corroborating line of evidence for isotopic dating;
- Study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time;
- Study patterns and processes of evolution, extinction, and speciation; and
- Identify past and potential future human-caused effects to global environments and climates."

Fossil resources vary widely in their relative abundance and distribution and not all are regarded as significant. According to Bureau of Land Management (BLM) Instructional Memorandum (IM) 2009-011, a "Significant Paleontological Resource" is defined as:

> "Any paleontological resource that is considered to be of scientific interest, including most vertebrate fossil remains and traces, and certain rare or unusual invertebrate and plant fossils. A significant paleontological resource is considered to be of scientific interest if it is a rare or previously unknown species, it is of high quality and well-preserved, it preserves a previously unknown anatomical or other characteristic, provides new information about the history of life on earth, or has an identified educational or recreational value. Paleontological resources that may be considered not to have scientific significance include those that lack provenience

> or context, lack physical integrity due to decay or natural erosion, or that are overly redundant or are otherwise not useful for research. Vertebrate fossil remains and traces include bone, scales, scutes, skin impressions, burrows, tracks, tail drag marks, vertebrate coprolites (feces), gastroliths (stomach stones), or other physical evidence of past vertebrate life or activities" (BLM, 2008).

Vertebrate fossils, whether preserved remains or track ways, are classified as significant by most state and federal agencies and professional groups (and are specifically protected under the California Public Resources Code). In some cases, fossils of plants or invertebrate animals are also considered significant and can provide important information about ancient local environments. Assessment of significance is also subject to the CEQA criterion that the resource constitutes a "unique paleontological resource or site."

The full significance of fossil specimens or fossil assemblages cannot be accurately predicted before they are collected, and in many cases, before they are prepared in the laboratory and compared with previously collected fossils. Pre-construction assessment of significance associated with an area or formation must be made based on previous finds, characteristics of the sediments, and other methods that can be used to determine paleoenvironmental and taphonomic conditions.

4.0 LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

This section of the report presents the regulatory requirements pertaining to paleontological resources that may apply to this Project.

4.1 STATE REGULATORY SETTING

4.1.1 California Environmental Quality Act (CEQA)

The procedures, types of activities, persons, and public agencies required to comply with the California Environmental Quality Act (CEQA) are defined in the Guidelines for Implementation of CEQA (State CEQA Guidelines), as amended on March 18, 2010 (Title 14, Section 15000 et seq. of the California Code of Regulations) and further amended January 4, 2013. One of the quested listed in the CEQA Environmental Checklist is: "Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (State CEQA Guidelines Appendix G, Section V, Part C).

4.1.2 State of California Public Resources Code

The State of California Public Resources Code (Chapter 1.7), Sections 5097.5 and 30244, includes additional state level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts on paleontological resources resulting from development on state lands, and define the excavation, destruction, or removal of paleontological "sites" or "features" from public lands without the express permission of the jurisdictional agency as a misdemeanor. As used in Section 5097, "state lands" refers to lands owned by, or under the jurisdiction of, the state or any state agency. "Public lands" is defined as lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof.

5.0 METHODS

This paleontological analysis of existing data included a geologic map review, a literature search, and one institutional record search. The goal of this report is to evaluate the paleontological potential of the Project area and make recommendations for the mitigation of adverse impacts on paleontological resources that may occur as a result of the proposed Project. Nathan Dickey, M.S., performed the background research, prepared GIS maps, and authored this report. Principal Investigator Courtney Richards, M.S., performed the technical review, and Geraldine Aron, M.S., oversaw all aspects of the Project as the Paleontological Project Manager.

Copies of this report will be submitted to the EGI and Titan Solar, LLC. Paleo Solutions will retain an archival copy of all Project information including record searches, maps, and other data.

5.1 PALEONTOLOGICAL ANALYSIS

Paleo Solutions reviewed geologic mapping of the Project area by Dibblee and Minch (2008a,b) at a scale of 1:24,000. The literature reviewed included published and unpublished scientific papers. A paleontological record search was completed by the SDNHM on October 4, 2017. The results of the record search are attached as Appendix A. A second record search was requested from the Colorado District Stout Research Center in Anza Borrego on October 3, 2017; however, as of the date of this report, a response has not been received. Additional record searches of online databases were completed by Paleo Solutions staff.

5.2 PALEONTOLOGICAL POTENTIAL CLASSIFICATION CRITERIA

The PFYC system was developed by the Bureau of Land Management (BLM, 2016). Because of its demonstrated usefulness as a resource management tool, the PFYC has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential). This system is intended to aid in predicting, assessing, and mitigating paleontological resources. The PFYC system is summarized in Table 1.

Table 1. Potential Fossil Yield Classification (BLM, 2016)

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
1 = Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 = Low	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent aeolian deposits
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely
	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 = Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary (PFYC System)
	Marine in origin with sporadic known occurrences of paleontological resources.
	Paleontological resources may occur intermittently, but these occurrences are widely scattered
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in the area of a proposed action and whether the action could affect the paleontological resources.
4 = High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including nonvertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 = Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U = Unknown	Geologic units that cannot receive an informed PFYC assignment
	Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is unknown.
	Geologic units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

6.0 ANALYSIS OF EXISTING DATA

6.1 LITERATURE SEARCH

Geologic mapping by Dibblee and Minch (2008a,b) indicates that the Project area is entirely underlain by the late Pleistocene- to Holocene-aged (approximately 37,000 to 240 years ago) Lake Cahuilla Beds, described below (Figure 3).

6.1.1 Lake Cahuilla Beds

The Lake Cahuilla Beds consist of a thin series of tan-gray claystone, sand, and gravel deposited in former Lake Cahuilla. Lake Cahuilla is the name given to a recurring prehistoric lake in the Cahuilla Valley, first named by William Phipps Blake after the local Cahuilla tribe (Norris and Norris, 1961). The lake was formed by the natural periodic diversion of the Colorado River from its normal terminus in the Gulf of California to the Cahuilla Basin, in which the Salton Sea exists today. When full, the lake extended from the southern end of the Coachella Valley to the Cerro Prieto area in Baja California, Mexico (Laylander, 1997). The lake typically evaporated when the Colorado River reverted to flowing in the ocean, stranding any flora or fauna previously living in the lake. The total thickness of these sediments is up to 300 feet, and the last appearance of Lake Cahuilla was 300 to 500 years ago (Norris and Webb, 1990).

Fossil shells from the Lake Cahuilla Beds are found throughout the Cahuilla Basin and were first described by scientific literature over 150 years ago (Taylor, 1970). Documented species from the Lake Cahuilla Beds include several species of microfauna such as diatoms, spores, and pollen, and macrofauna including clams, gastropods, ostracods, fish (e.g., desert pupfish, bonytail chub, and razorback sucker), lizards (e.g., horned lizard, spiny lizard, brush lizard), snakes (e.g., shovel-nosed snake, night snake, gopher snake, ground snake, sidewinder, and rattlesnake), rabbit (e.g., cottontail), and various rodents (e.g., pocket mouse, kangaroo rat, ground squirrel, and wood rat) (Whistler et al., 1995). Due to the abundance of invertebrate and vertebrate fossils discovered in the Lake Cahuilla Beds, this formation has a high paleontological potential (PFYC 4).

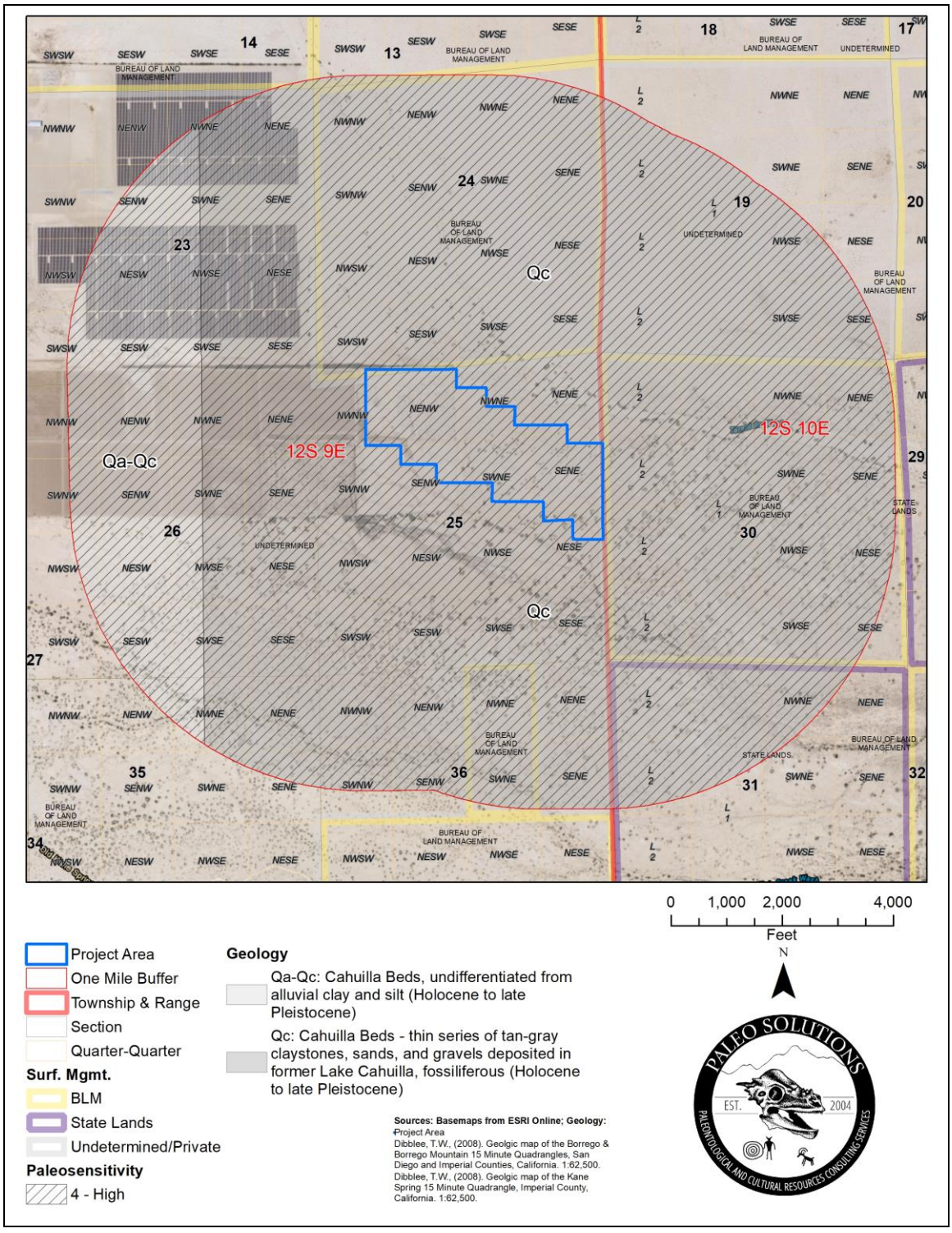

Figure 3. Project Geology Map.

6.2 PALEONTOLOGICAL RECORD SEARCH RESULTS

A paleontological record search was completed by the SDNHM on October 4, 2017. The museum states that there are no localities within one mile of the Project area. However, they report that the Lake Cahuilla Beds have produced well-preserved remains of freshwater invertebrates (e.g., clams and snails) and freshwater vertebrates (e.g., bony fish) (McComas, 2017; Appendix A). A second institutional record search was requested from the Colorado District Stout Research Center in Anza Borrego on October 3, 2017; however, as of the date of this report, a response has not been received.

7.0 IMPACTS TO PALEONTOLOGICAL RESOURCES

Impacts on paleontological resources can generally be classified as either direct, indirect or cumulative. Direct adverse impacts on surface or subsurface paleontological resources are the result of destruction by breakage and crushing as the result of surface disturbing actions including construction excavations. In areas that contain paleontologically sensitive geologic units, ground disturbance has the potential to adversely impact surface and subsurface paleontological resources of scientific importance. Without mitigation, these fossils and the paleontological data they could provide if properly recovered and documented, could be adversely impacted (damaged or destroyed), rendering them permanently unavailable to science and society.

Indirect impacts typically include those effects which result from the continuing implementation of management decisions and resulting activities, including normal ongoing operations of facilities constructed within a given project area. They also occur as the result of the construction of new roads and trails in areas that were previously less accessible. This increases public access and therefore increases the likelihood of the loss of paleontological resources through vandalism and unlawful collecting. Human activities that increase erosion also cause indirect impacts to surface and subsurface fossils as the result of exposure, transport, weathering, and reburial.

Cumulative impacts can result from incrementally minor but collectively significant actions taking place over a period of time. The incremental loss of paleontological resources over time as a result construction-related surface disturbance or vandalism and unlawful collection would represent a significant cumulative adverse impact because it would result in the destruction of non-renewable paleontological resources and the associated irretrievable loss of scientific information.

Project excavations into the Lake Cahuilla Beds, which have high potential (PFYC 4), may result in significant direct impacts to paleontological resources. Project-related ground disturbance is expected to be significant during grading for access roads and pads, and during trenching for electrical collector lines.

No indirect or cumulative impacts are anticipated from any of the planned Project activities.

8.0 CONCLUSIONS

Due to the presence of geologic units with high paleontological potential within the Project area, implementation of measures to reduce the potential adverse impacts resulting from construction-related ground disturbance in native sediments of the Lake Cahuilla Beds is recommended. Based on the available Project information, it is anticipated that this will be primarily be limited to grading/blading of access roads and pads, and trenching for electrical collector lines. Prior to the start of construction, a paleontological resources monitoring plan should be prepared and

implemented by a qualified paleontologist. That plan should include specific locations and construction activities requiring monitoring, procedures to follow for monitoring and fossil discovery, and a curation agreement with the SDNHM or other approved repository.

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APPENDIX A. RECORD SEARCH RESULTS

SAN DIEGO NATURAL HISTORY MUSEUM

4 October 2017

Ms. Barbara Webster
Paleo Solutions
911 S. Primrose Avenue, Unit N
Monrovia, CA 91016

RE: Paleontological Records Search – Seville 4 Solar Energy Project

Dear Ms. Webster:

This letter presents the results of a paleontological records search conducted for the Seville 4 Solar Energy project, located in west central Imperial County, CA. The project site lies south of State Route 78 and north of Old Kane Spring Road, approximately 9 miles ESE of Ocotillo Wells, and is bounded to the west by cleared land, and to the north, east, and south by undeveloped land.

A review of published geological maps covering the project site and surrounding area was conducted to determine the specific geologic units underlying the project. Each geologic unit was subsequently assigned a paleontological resource potential following guidelines developed by the Society of Vertebrate Paleontology (SVP, 2010). Published geological reports (e.g., Dibblee and Minch, 2008) covering the project area indicate that the proposed project has the potential to impact the late Pleistocene to Holocene-age Lake Cahuilla Beds. This geologic unit and its paleontological potential are summarized in detail in the following section.

In addition, a search of the paleontological collection records housed at the San Diego Natural History Museum (SDNHM) was conducted in order to determine if any documented fossil collection localities occur at the project site or within the immediate surrounding area (Figure 1). The SDNHM does not have any recorded fossil localities within one mile of the project site. However, the Lake Cahuilla Beds have produced fossils elsewhere in Imperial County, and these are described in greater detail below.

Geologic Rock Units Underlying the Project Area

Lake Cahuilla Beds – Lake Cahuilla was a former freshwater lake that periodically occupied a major portion of the Salton Trough during late Pleistocene to Holocene time (approximately 37,000 to 240 years ago), depositing sediments that underlie the entire project site. Generally, Lake Cahuilla sediments consist of an interbedded sequence of both freshwater lacustrine (lake) and fluvial (river/stream) deposits. While there are no fossil collection localities within a 1-mile radius of the project site, the Lake Cahuilla Beds of Imperial County have produced well-preserved subfossil remains of freshwater invertebrates (e.g., clams and snails) and freshwater vertebrates (e.g., bony fish) (Deméré and Walsh, 1993). The paleontological resources of the Lake Cahuilla Beds are considered significant because of the paleoclimatic and paleoecological information they can provide (Jefferson, 2006), and are therefore assigned a high paleontological potential (SVP, 2010).

thenat | P.O. BOX 121390, SAN DIEGO, CA 92112-1390
SDNAT.ORG P 619.232.3821 F 619.232.0248

Summary and Recommendations

The high paleontological potential of the Lake Cahuilla Beds (SVP, 2010) suggests that construction of the proposed project may result in impacts to paleontological resources. Any proposed excavation activities that extend deep enough to encounter previously undisturbed deposits of this geologic unit have the potential to impact the paleontological resources preserved therein. For these reasons, implementation of a complete paleontological resource mitigation program during ground-disturbing activities is recommended.

If you have any questions concerning these findings please feel free to contact me at 619-255-0321 or kmccomas@sdnhm.org.

Sincerely,

Katie McComas
Paleontology Collections Assistant
San Diego Natural History Museum

Enc: Figure 1: Project map

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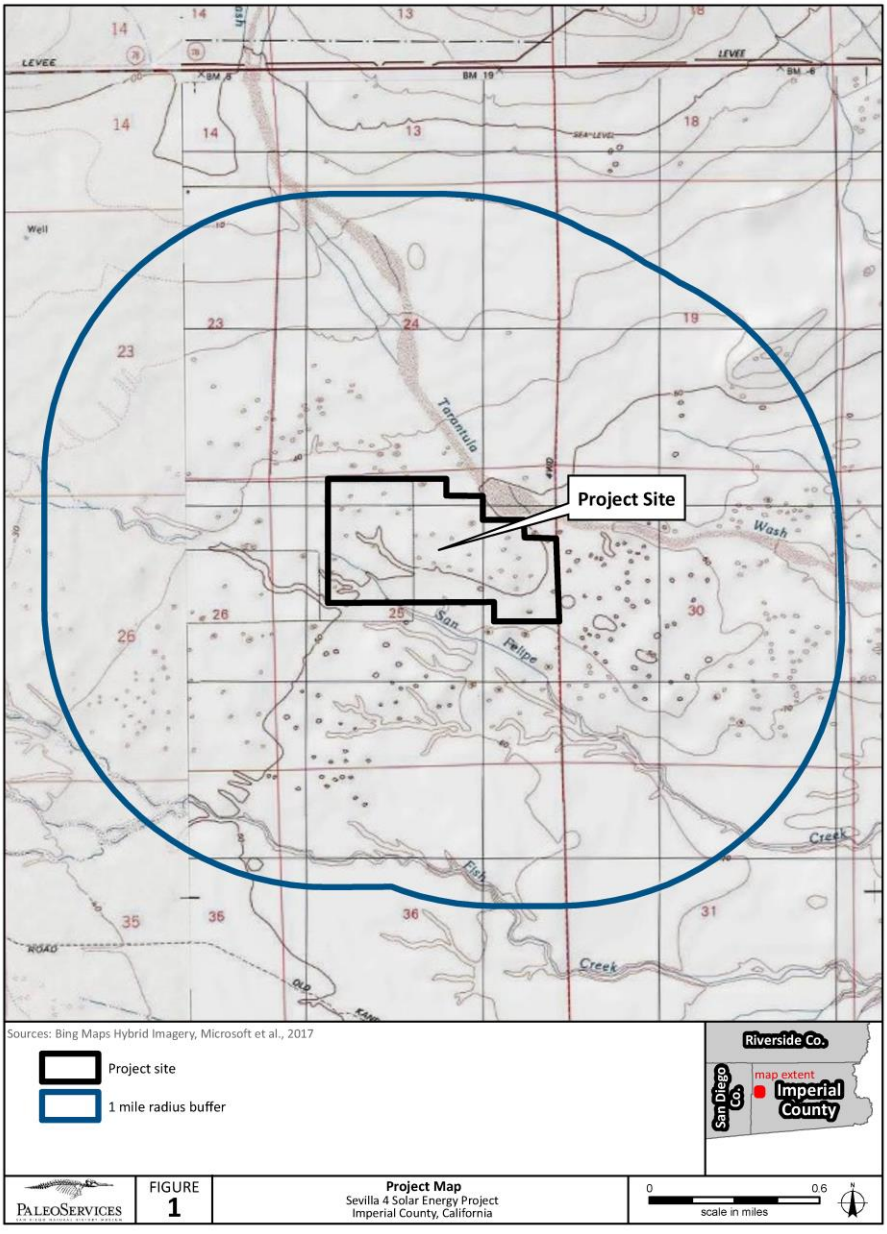
Project Site
Tarantula
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Felipe
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Sources: Bing Maps Hybrid Imagery, Microsoft et al., 2017
Project site
1 mile radius buffer
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San Diego Co.
map extent
Imperial County
PALEOSERVICES
FIGURE 1
Project Map
Sevilla 4 Solar Energy Project
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scale in miles